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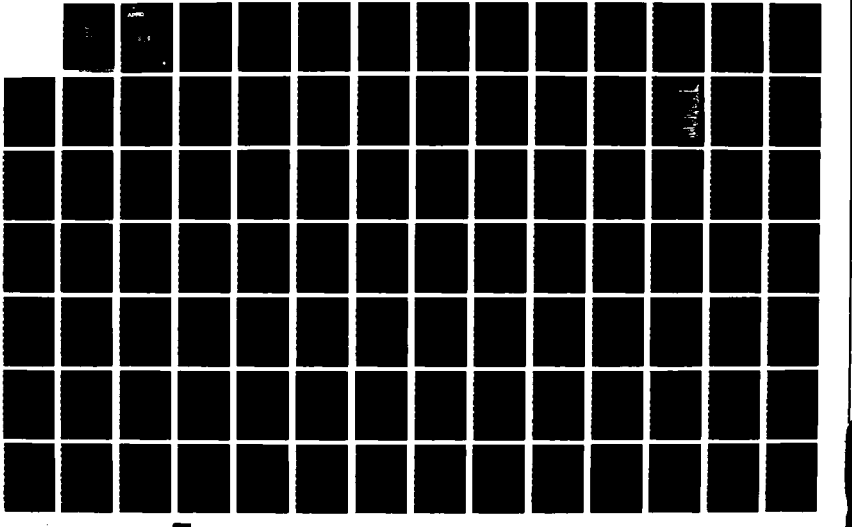

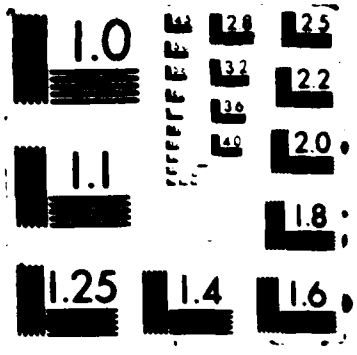
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MARCH 1987

ARMY PROCUREMENT RESEARCH OFFICE
OFFICE OF DEPUTY CHIEF OF STAFF FOR LOGISTICS
FORT LEE, VIRGINIA 23801-6045

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ALIGNMENT OF MANPOWER REQUIREMENTS WITH PROCUREMENT WORKLOAD

by

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Information and data contained in this document are based on input available at the time of preparation. This document represents the view of the author and should not be construed to represent the official position of the United States Army.

The pronouns "he", "his", and "him", when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.

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EXECUTIVE SUMMARY

A. BACKGROUND/PROBLEM. Army Materiel Command (AMC) Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans and are experiencing significant increases in administrative lead time (ALT). ALT, the number of calendar days from the generation of a Procurement Work Directive (PWD) to contract award, has increased despite additional personnel. Factors such as manpower distribution and the new competition policy are suspected causes of this increase. Procurement and Production Directorates (PPDs) are responsible for the major subset of ALT called Procurement Administrative Lead Time (PALT). PALT is the number of calendar days from the acceptance of a PWD by the PPD to contract award, minus those days the PWD was delayed due to conditions external to the procurement process. Current AMC-developed PALT standards do not detail the times consumed by individual PALT components or specific instrument types. Consequently, it is difficult to assess the causative factors behind the failure to achieve the planned PAA-Secondary obligation rate.

B. OBJECTIVE. Develop a PALT model for determining PPD manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, US Army Missile Command (MICOM). A preliminary evaluation of the applicability of the model to other types of procurement actions and to other MSCs is made, with a more complete evaluation to be based on future analyses.

C. STUDY APPROACH. The approach consisted of describing MICOM PWD flow for Secondary Items, utilizing computer simulation techniques to develop a PWD model and evaluate its portrayal of MICOM Secondary Item Contract Execution using test data, collecting and analyzing MICOM procurement workload and manpower data to develop hypotheses on the relationships between model elements, applying the model to the MICOM PWD process to estimate optimal workforce factors, and evaluating the applicability of the model to other types of procurement actions at the MSCs.

D. SUMMARY AND RECOMMENDATIONS. Current MICOM PPD manpower allocation may be suboptimal. An algorithm was developed for realigning manpower to reduce average PWD PALT and procurement backlog. Future manpower reallocations should be simulated with dedicated computer resources to arrive at an optimal manpower realignment.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

LIST OF FIGURES

LIST OF TABLES

TABLE PAGE

CHAPTER I

INTRODUCTION

A. BACKGROUND/PROBLEM.

Army Materiel Command (AMC) Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans in total or in part and are experiencing significant increases in administrative lead time (ALT). ALT, the number of calendar days from the generation of a Procurement Work Directive (PWD) to contract award, has increased despite additional personnel. Many factors, such as manpower distribution and the new competition policy, are suspected causes of this increase.

Procurement and Production Directorates (PPDs) are responsible for the major subset of ALT called Procurement Administrative Lead Time (PALT). PALT is the number of calendar days from the acceptance of a PWD by the PPD to contract award, minus those days the PWD was delayed due to conditions external to the procurement process. PPDs maintain historical data on PWD processing times which are used by AMC HQs to develop PALT standards. These standards, however, do not detail the times consumed by individual PALT components or specific instrument types. Without this detailed information, it is difficult to assess the causative factors behind the failure to achieve the planned PAA-Secondary obligation rate. This study estimates the effect of such factors as manpower distribution and workload on the attainment of obligation plans. Of particular interest is the number of personnel required to be added or deleted at each major processing point in the procurement process to reduce PALT and thereby improve overall contract execution performance.

B. STUDY OBJECTIVE.

The objective of this study is to develop a PALT model for determining PPD manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, the US Army Missile Command (MICOM). The model cannot be a precise system replica, but only an approximation. Its basic role is to aid procurement decision makers in understanding system problems, and its efficiency depends upon the availability and quality of procurement resource data. The applicability of the model to other types of procurement actions at the MSCs will be evaluated based on future analyses.

C. SCOPE.

The PALT model developed herein simulates MICOM Secondary Item Contract Execution for FY85. MICOM is utilized as a data source based on its long-term use of the new AMC-wide procurement organization. The feasibility of applying the model to other types of procurement actions and to other MSCs is discussed.

D. METHODOLOGY.

1. Describe MICOM PWD flow for Secondary Items.

2. Based on this flow, utilize computer simulation techniques to develop a PWD model and evaluate its portrayal of MICOM Secondary Item Contract Execution using test data.

3. Collect and analyze MICOM procurement workload and manpower data to develop hypotheses on the relationships between model elements.

4. Using these relationships, apply the model to the MICOM PWD process to estimate optimal workforce factors.

5. Make a preliminary evaluation of the applicability of the model to other types of procurement actions at the MSCs.

CHAPTER II

STUDY APPROACH

A. ALTERNATIVES CONSIDERED.

Before the operations of any real-world facility or process can be studied scientifically, assumptions concerning the facility or process of interest (i.e., the system) have to be made. Once a system model has been properly formulated, one considers which alternatives should be employed to obtain information on various questions of interest regarding the system under study.

Two major alternatives employed in system analysis are analytical and simulation techniques. Analytical techniques employ mathematical theory to obtain exact information on system parameters. Simulation techniques employ computers to numerically analyze the system, yielding estimates of parameters under study, as opposed to exact solutions.

Most real-world systems require use of simulation techniques for effective analysis and interpretation. Simulation techniques are used in "What if ...?" situations. For example, a procurement organization may be interested in minimizing paperwork processing time utilizing as few personnel as possible. It would not be cost-effective for management to actually alter existing personnel levels, and then reallocate manpower again should the first allocation be suboptimal. However, by artificially changing personnel levels in a computer simulation model, one can effectively answer the question "What would happen to processing time if the suggested manpower allocation were actually implemented?" (if the model accurately reflects the real-world system).

Simulation modeling requires the system under study be described in a fashion compatible with a computing system. If the system can be characterized by a set of variables (e.g., the number and type of PWDs and their processing times, manpower and backlog levels at each major system processing point, etc.), with each combination of variable values comprising a unique state of the system, then altering these values represents system state-to-state transition. Simulation has been defined as the representation of the dynamic behavior of the system by moving it from state to state in accordance with well-defined operating rules [1].

Simulation languages are utilized in much simulation modeling. Simulation languages automatically provide most features needed in programming a simulation model, thereby decreasing programming time. They provide a natural framework for simulation modeling. Simulation models can be updated more efficiently when written in a specific simulation language than those in a more general language like FORTRAN. Furthermore, most simulation languages provide dynamic storage allocation during program execution [2].

There is a variety of simulation languages, including GASP IV, GPSS, SIMSCRIPT II.5, and SLAM (Simulation Language for Alternative Modeling). In SLAM, one can combine symbols called nodes and branches into an interconnected network which represents the system under study. This network can be visualized as a picture of the process through which entities (e.g., PWDS) "flow". SLAM was chosen as the simulation language for describing MICOM PWD flow as it offers a variety of modeling approaches. The SLAM compiler at the Army Logistics Management Center of Fort Lee, VA was used.

B. PORTRAYAL OF MICOM PWD SPARE PARTS FLOW.

The first step in the design of the model was portraying MICOM PPD PWD spare parts flow for FY85. After several joint AMC/APRO/MICOM consultation reviews, the spare parts flow charts provided at Appendix A were developed.

An overview of the flow appears at Figure 1. A PWD arrives at Procurement Planning, where its planning type category is determined: value not exceeding $5000 [sent directly to the Buy Station (BS)], Special Buy, Urgent Small Purchase (not exceeding $25,000), Urgent Large Purchase (exceeding $25,000), Routine Small Purchase (not exceeding $25,000), and Routine Large Purchase (exceeding $25,000).

The flow for each planning type category terminates at the BS. There are five BS categories: Small Purchase Procedure, Priced Basic Ordering Agreement (BOA), Unpriced BOA, Request for Proposal (RFP), and Invitation for Bid (IFB). BS flow terminates at contract award.

Minimal symbolism is utilized in the flow charts. Circles denote entry and departure points. Squares denote locations where PWDs await processing by PPD personnel performing related tasks. Diamonds denote decision or branching points, where the path the PWD is to follow is decisional (yes/no) or probabilistic in nature. Double triangles either denote points where the PWD is delayed while being processed by non-PPD personnel, or signify the PWD is to proceed to the BS or contract award.

An example is the flow for Special Buy PWDs (corresponding flow for the remaining charts is analogous). Such a PWD enters the flow via the leftmost circle labeled "Enter". The PWD proceeds to a processing station staffed by 2 PPD personnel, where it awaits service. Such a point is called a queue station since the PWDs wait in line for service. The PALT model automatically records this waiting time. This particular queue station is labeled "Q1/2",

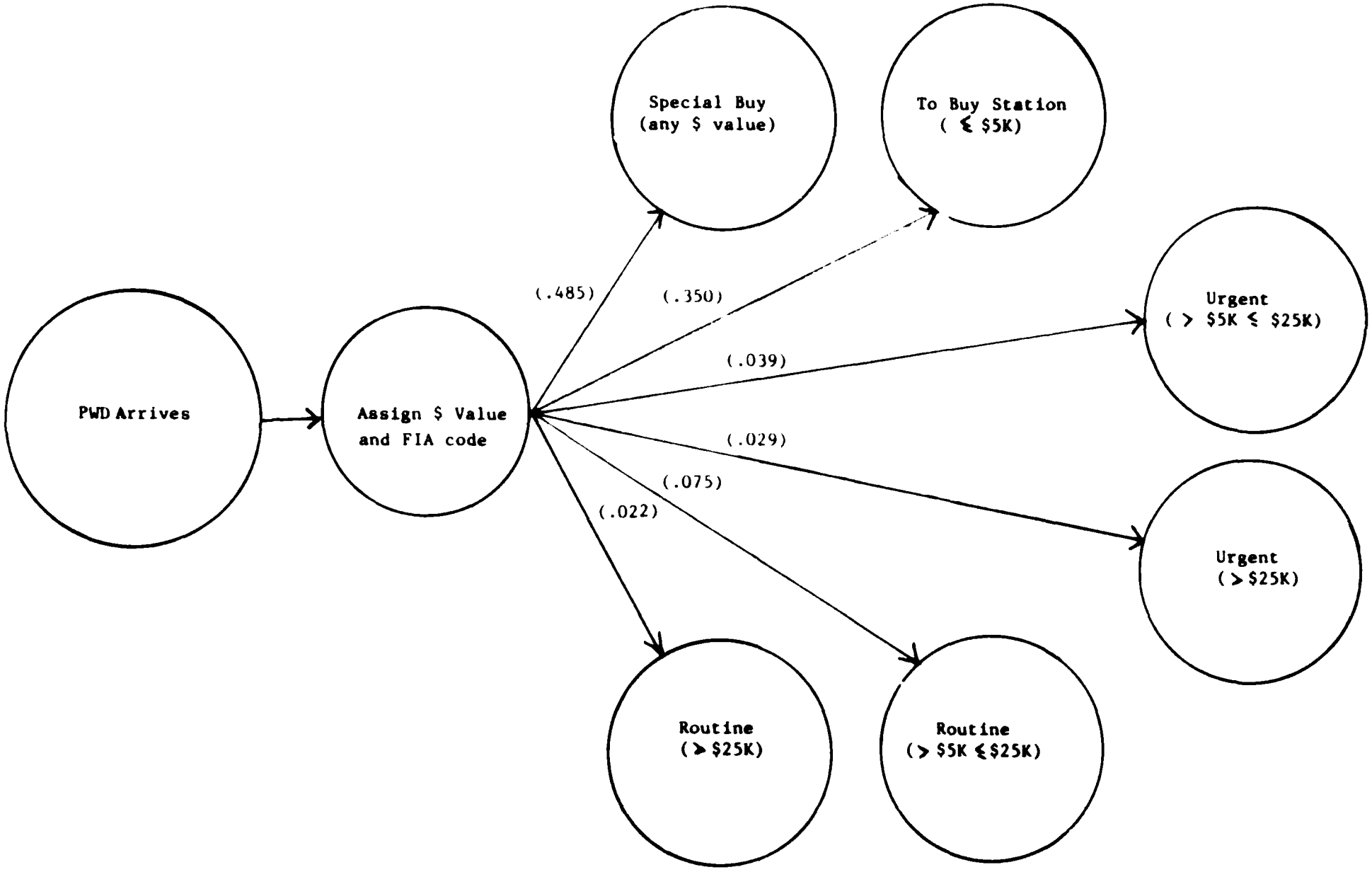


FIGURE 1: OVERVIEW OF MICOM PPD PWD
SECONDARY ITEM FLOW

meaning queue number one has two servers assigned to it. The processing at this queue consists of assigning a planning specialist to the PWD, with a notional "hands-on" service time of 1.45 hours, denoted by "(1.45)". Touch-times such as this are often augmented by such delays as the PWD remaining on a server's desk while the employee is at lunch, at home overnight, etc. This augmentation is automatically performed and recorded by the PALT model via the user-defined function, USERF(2), provided at Appendix C.

Once a planning specialist has been assigned, the PWD buy type is determined probabilistically: 5% of all the PWDs that have just been assigned a planning specialist are General Services Administration Mandatory/Federal Prison Institute (denoted herein by "GSA"), while 95% are Foreign Military Sales/Provisioning (denoted herein by "FMS"). If the PWD is a GSA, it is forwarded to a processing point staffed by seventeen PPD personnel. At this queue (Q2), two activities are performed: reviewing Form 1095 and the master format. The mean unaugmented "hands-on" processing time by any one of these seventeen servers is 1.07 hours. Upon completion of this processing, the GSA PWD proceeds to queue three which is staffed by three PPD personnel, one of whom will perform the task "contracting officer/higher-level review" on the PWD. The PWD is then routed to the Small Purchase section of the appropriate BS branch.

If the PWD is a FMS, it is delayed while non-PPD personnel obtain an urgency statement, technical certifications, FMS case decision, and other related activities. This delay point is not a queue station. A queue station may be considered as an office staffed by PPD personnel, each of whom can perform any or all of the listed set of activities. PWDs arriving to the queue (office) are placed in one "in-box". As a server becomes available to

process a PWD, that PWD which is "next in line" is processed first. Delay points, however, are offices where PWDs await processing by non-PPD personnel. The number of such personnel involved is extraneous to the study objectives; no re-allocation of such personnel is under consideration. Consequently, the number of non-PPD personnel utilized at a delay point is irrelevant. What is relevant at a delay point, however, is the time the PWD is delayed. At the delay point in question, the PWD is delayed anywhere from five to fourteen days, with ten days being the usual delay time. This is denoted, in hours, by (120,240,336).

Upon leaving the first delay point, the FMS PWD is delayed for batching in a "batch-box". Batch-boxes are cleared every thirty days with twelve and a half days (300 hours) being the average (modal) batching delay.

The FMS PWD then arrives at the same queue two, where any or all of the following tasks will be performed on it once one of the same seventeen PPD personnel is available to process the PWD: processing DA Form 1877, Justification and Approval, reviewing Form 1095, master format, and preparing synopsis/waiver. Upon completion of processing, the PWD is forwarded to queue three. Its subsequent routing is a function of its dollar value. If it is greater than $100,000, the PWD proceeds through a series of approval functions, as applicable. If, at any stage of this series, the PWD is disapproved, its Justification and Approval is amended by PPD personnel at queue two, the PWD is returned to queue three, and the process repeats again. The cycle does not repeat indefinitely, as the following decision-making procedure is utilized: if a given office in the series disapproves the PWD, the same office will approve it should it receive it again for consideration. Once the PWD completes the approval cycle, or if it does not exceed $100,000, its priority designator is determined. If the designator is 2 through 6, the

PWD proceeds to the BS; if over 6, the PWD is delayed while a Small Business review is conducted. If Small Business is in agreement, the PWD is forwarded to the BS; otherwise it is delayed while a planning resolution procedure is conducted before proceeding to the BS.

C. PROGRAMMING PWD FLOW IN A SIMULATION LANGUAGE.

The second step in designing the model was programming the PWD flow charts in the simulation language SLAM. The program code, over 1700 lines in length, is provided at Appendix B. The code is simply a "snapshot" of the flow charts, augmented by input data provided by the study sponsor. It is in a form the SLAM compiler can understand. It is this code which instructs the computer to simulate the PWD process flow; it enables the simulation to be performed.

The code is comprised of hundreds of modules, each of which can be considered as an "index" card. These modules have the property that the vast majority of them can be "shuffled" without affecting the simulated flow, thereby allowing for ease of program expansion, as appropriate. Furthermore, one should note that semicolons denote comments: for a given line of program code, all items appearing after a semicolon have no effect whatsoever on the simulation; the computer "ignores" all comments. Comments merely aid the reader in understanding what a program code segment is accomplishing.

The first module consists of lines 1 through 93. The GEN statement identifies the program author, title, and date the simulation commenced. The LIMITS statement specifies that 15 adjacent memory files have been allocated for the queue stations, that each PWD possesses 12 attributes (listed on lines 45 through 92), and that a maximum of 18000 PWDs may reside concurrently in all files. The MONTR statement prints a simulation summary report every 730 hours over a two year period of simulated time. The SEEDS statement

initializes the random number generator. The NETWORK statement denotes the beginning of the network description.

The second module (lines 94 through 109) consists of a CREATE node followed by six branches (possible paths) a PWD could follow. PWD influx is generated by the user-defined function, USERF(1), provided at Appendix C. Once a PWD arrives in Planning, its Planning type must be determined. Lines 103 through 108 reflect the corresponding probabilities with which a newly arrived PWD becomes a particular Planning type. For example, line 103 ("ACT,,.485,G3;") specifies that 48.5% of all arriving PWDs are Special Buys. Consequently, the computer will "determine" that an arriving PWD is a Special Buy 48.5% of the time. If it does, then it will route the PWD to node G3, which is the beginning of the Special Buy program subcode (line 113); G3 is the end node label of this activity (ACT) statement.

One notices most modules are of the form "BEGINNING NODE, ACTIVITY STATEMENTS, ENDING NODE LABELS". For example, the second module begins with a CREATE node, followed by six activity statements and corresponding ending node labels, one for each activity. The third module (lines 110 through 112), consists of an assign node (A2) followed by one activity statement ("ACT,24,,BS;") and one ending node label (BS). The results of the simulation (except possibly processing time) are independent of the location of most of the modules in the program code. Although detailed explanations of the SLAM statements utilized in the program are found at [1], a brief description of them follows.

QUEUE(IFL); denotes queue node number IFL and is used to delay entities in file IFL until a server becomes available. For example, line 1464, "Q1 QUEUE(1)" indicates a PWD has arrived to queue number one.

ACT(N)/A, duration, probability, node label; is the service activity statement used in conjunction with the QUEUE node to model a queue with N identical servers. For example, line 1465, "ACT(2)/1,USERF(2),,H1;" indicates that queue number one (line 1464) has 2 PPD personnel assigned to it, that this is service activity number 1, and that the time it takes a server to process the PWD is provided by USERF(2). The PWD then proceeds to node H1 (line 1466), where its subsequent routing is a function of its corresponding value of attribute nine.

ACT, duration, probability or condition, node label; is the regular activity statement, which is used to delay entities, perform conditional and/or probabilistic branching, and to route entities to other nodes. For example, the regular activity statement "ACT,,.022,G80;" (line 108) signifies that, after the PWD is delayed for 0 hours, it has a 2.2% chance of being routed to node G80 (i.e., of being a routine large purchase, line 505). The regular activity statement "ACT,TRIAG(0.,300.,720.),ATRIB(9).EQ.1,A6;" (line 137) means "delay the PWD for anywhere from 0 to 720 hours (with 300 hours being the most frequent delay time), and then, if the value of attribute 9 for the PWD equals 1, route the PWD to assign node number 6 (line 139)."

ASSIGN,VAR=value,VAR=value,....,M; denotes an assign node, used for assigning values to variables whenever an entity arrives to the node. At most M emanating activities are initiated. For example, lines 139 - 141,

```
A6    ASSIGN, ATRIB(9)=2,
                  ATRIB(10)=12.34;
      ACT,,,Q2;
```

signify that, should a PWD arrive at assign node A6, attributes 9 and 10 of the PWD are set equal to 2 and 12.34, respectively, and that the PWD is

immediately routed to queue two (line 1472). If no value is specified for M, then M defaults to a value of one, as in this example.

GOON,M; denotes a go-on node, used to denote a process continuation, and is often equivalent to the concept of the "dummy" node in PERT. Go-on nodes are used in the program code to portray delay times. For example, lines 1418-1419,

```
G261  GOON,1;                          Congressional Notification.
      ACT,72.,,G265;
```

signify that the Congressional notification process takes 72 hours to perform, and upon completion of this procedure, the PWD is routed to node G265. This subsequent node (lines 1420 - 1425),

```
G265  GOON,1;                          Prepare to branch for KO
;                                      signature.
      ACT,,ATRIB(4).LT.5,A217;         <= $500K.
      ACT,,ATRIB(4).GT.4.AND.
           ATRIB(4).LT.8,A218;         > $500K <= $10M.
      ACT,,ATRIB(4).EQ.8,A219;         > $10M.
```

exercises a decision-making process; the path the PWD follows is a function of dollar value. The PWD proceeds to assign node A217 if the PWD does not exceed $500,000, to A218 if greater than $500,000 and at most $10,000,000, and to A219 if greater than $10,000,000.

COLCT(N),INT(NATR),ID; is a COLCT node, used to collect statistics related to the time the PWD arrives at the node. N denotes collect node number N, and INT(NATR) records the time interval between the time of the PWDs

arrival to this node and the time stored in attribute number NATR of the arriving PWD. For example, lines 1665 - 1666,

```
C1    COLCT(1),INT(1),LE5KSP;
      ACT,,,C28;
```

signify the following. If a PWD arrives at this first collect node, it must be less than or equal to $5K ($5000), and follows a Small Purchase procedure at the BS. INT(1) records the time interval between the PWD's time of arrival to this node and the time stored in attribute number NATR = 1 of the PWD. One should note that the value of the first attribute of any PWD equals the PWD's arrival time to Planning (cf line 47). Consequently, INT(1) equals the PWD's arrival time to the collect node minus its arrival time to Planning. In other words, INT(1) equals PALT. The PWD then proceeds to the twenty-eighth collect node (line 1719) where additional statistics are obtained. Table 1 defines the terminology employed for all collect node labels.

TERM,TC; is the TERMINATE node used to terminate the simulation after all PWDs have been awarded contracts (line 1720). However, since it is desired that the simulation conclude at the close of FY85 and not all PWDs need have exited by this time, an additional simulation cut-off control is required. This is provided by the INITIALIZE statement appearing on line 1723: "INIT,0,17520;." This specifies the beginning and ending times for the simulation as 0 and 17520 hours, respectively, regardless of how many PWDs have been awarded contracts. These two statements collectively ensure that the simulation does not "shut-down" before all PWDs arrive to Planning, and that it does not continue operating past its termination date.

LE5KSP	Small Purchase not exceeding $5000
SBGSASP	Special Buy GSA Mandatory/FPI Small Purchase
SBFMSIPDSP	Special Buy FMS IPD 2-6 Small Purchase
SBFMSIPDPBOA	Special Buy FMS IPD 2-6 Priced BOA
SBFMSIPDUBOA	Special Buy FMS IPD 2-6 Unpriced BOA
SBFMSIPDRFP	Special Buy FMS IPD 2-6 RFP
SBFMSIPDIFB	Special Buy FMS IPD 2-6 IFB
SBFMSNIPDSP	Special Buy FMS IPD over 6 Small Purchase
SBFMSNIPDPBOA	Special Buy FMS IPD over 6 Priced BOA
SBFMSNIPDUBOA	Special Buy FMS IPD over 6 Unpriced BOA
SBFMSNIPDRFP	Special Buy FMS IPD over 6 RFP
SBFMSNIPDIFB	Special Buy FMS IPD over 6 IFB
UG5KLE25KFCSP	Urgent Small Purchase Format C Small Purchase
UG5KLE25KFCUBOA	Urgent Small Purchase Format C Unpriced BOA
UG5KLE25KNFCSP	Urgent Small Purchase Not Format C Small Purchase
UG5KLE25KNFCUBOA	Urgent Small Purchase Not Format C Unpriced BOA
UG25KFCUBOA	Urgent Large Purchase Format C Unpriced BOA
UG25KFCRFP	Urgent Large Purchase Format C RFP
UG25KNFCUBOA	Urgent Large Purchase Not Format C Unpriced BOA
UG25KNFCRFP	Urgent Large Purchase Not Format C RFP
RG5KLE25KFCSP	Routine Small Purchase Format C Small Purchase
RG5KLE25KFCPBOA	Routine Small Purchase Format C Priced BOA
RG5KLE25KNFCSP	Routine Small Purchase Not Format C Small Purchase
RG25KFCPBOA	Routine Large Purchase Format C Priced BOA
RG25KFCRFP	Routine Large Purchase Format C RFP
RG25KNFCRFP	Routine Large Purchase Not Format C RFP
RG25KNFCIFB	Routine Large Purchase Not Format C IFB
ALL	Independent of PWD type

Note: the word "purchase" has two connotations, depending on its position in a line: when towards the beginning, it denotes a dollar value not exceeding $25,000; when towards the end, it denotes a procedure.

TABLE 1: Collect Node Label Terminology

D. ASSUMPTIONS.

The third step in the design of the model consisted of making assumptions as to system operation. These assumptions are:

1. The PWD flow charts provided at Appendix A reflect the flow of PWDs through the PPD at MICOM for FY85. Although various processing and routing procedures were collapsed for ease of use, the flow charts are a reasonable representation of the actual flow.

2. All times appearing in this report are in hours, unless specified otherwise. This was done to minimize the effect of computer rounding error in all calculations.

3. Approximate as opposed to actual PWD arrival time is utilized in the model. Arrival times of all funded Secondary Item PWDs issued during FY85 were recorded by MICOM for 169 time periods. This arrival sequence, graphed at Figure 2, is provided at Appendix D. One can see the highly erratic nature of the PWD influx. To employ all this information in the program code would entail the development of a user-defined arrival function with 169 conditional (if...then) statements, which would slow processing time considerably. With current processing time amounting to approximately one week per simulation run, this approach does not seem feasible. To minimize processing time, yet still maintain some semblance of valid PWD influx, it was decided to average the PWD arrival time for each month of FY85. The reciprocal of each average monthly PWD arrival time yields each average monthly PWD interarrival time provided by the user-defined function USERF(1). This function is utilized at the CREATE node (line 94).

4. All the PPD servers at each queue station can perform any or all of the activities listed adjacent their corresponding queue node (cf Appendix A). The server processing times listed at each queue node were assumed to be

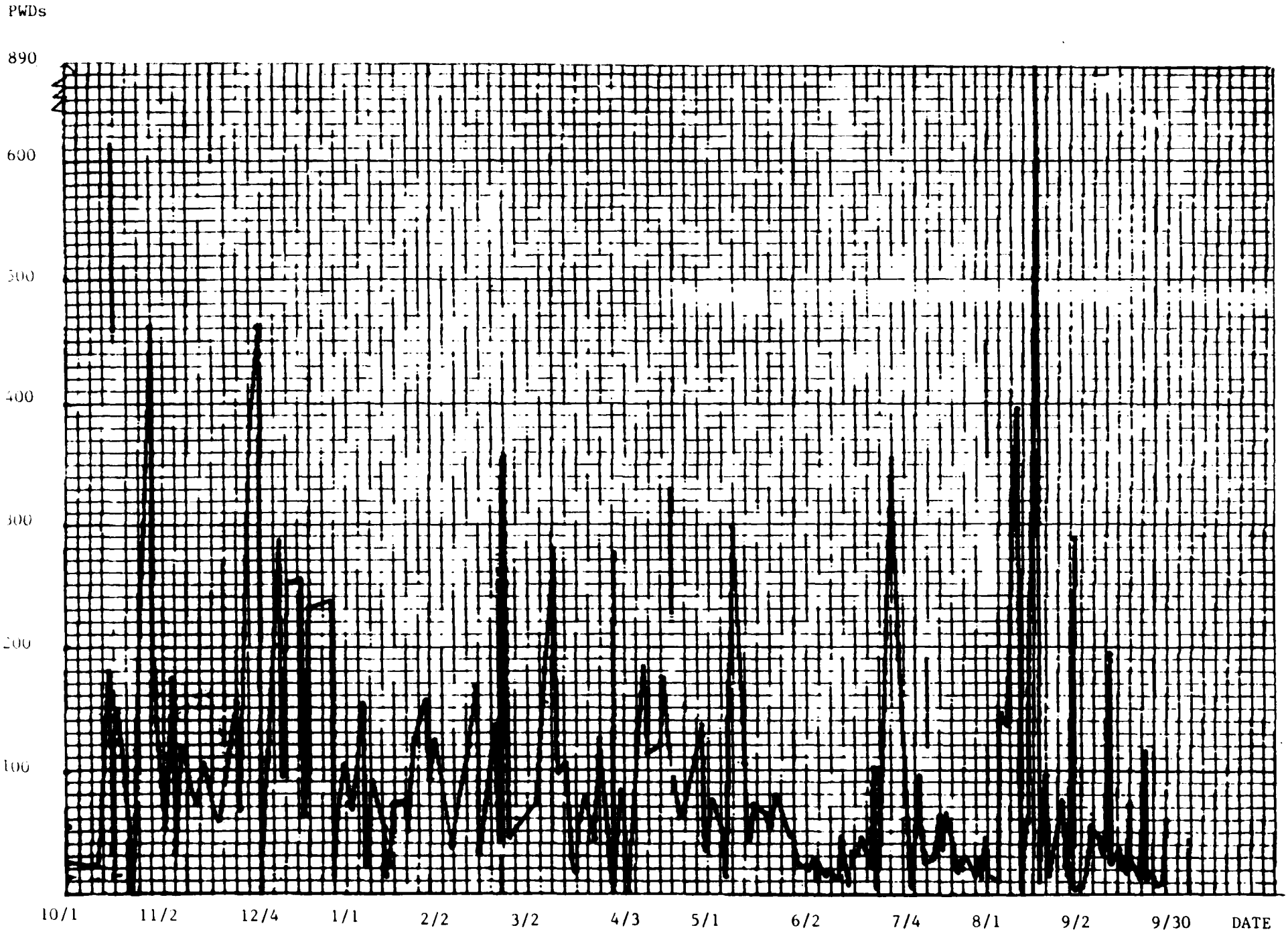


FIGURE 2: ARRIVAL TIMES OF ALL FUNDED SECONDARY ITEM MICOM PWDs ISSUED DURING FY85

constant and are notional "hands-on" times: actual service time may have to be augmented due to a server being idle (i.e., at lunch or at home). Any such augmentation is automatically performed by the user-defined function, USERF(2). It is assumed for this trial run of the model that server duty hours are 0800 to 1630, seven days per week, with a lunch break from 1200 to 1230 hours. Furthermore, it is assumed that if a server is not processing a PWD, then said server is idle. All PWDs are serviced on a first-in, first-out (FIFO) basis. The FIFO service priority selection rule is commonly employed in simulation.

5. All non-PPD delay times follow triangular probability distributions of the form TRIAG (LOW,MODE,HIGH), pending completion of a more precise database information structure. These delay times are all-inclusive: "hands-on", travel, and waiting times are summed for each delay.

6. Approval functions are formulated in such a way to prevent the occurrence of infinite looping. For example, if a PWD is disapproved by an office, and the PWD returns to said office (after reprocessing) for review, that PWD will not be disapproved again by said office. This occurs for example, in the series of approval functions for Special Buy PWDs.

7. Travel times between PPD processing points is assumed to equal zero, while travel time to the BS is one day.

8. Batching is not utilized in this trial run of the simulation model. In the batch process, similar PWDs are grouped into purchase requests. The grouping process is such that batches are emptied every thirty days. The typical time a PWD remains in a batch is 12.5 days. Batch PALT is defined as the PALT for that PWD (in the batch) with greatest PALT. Once a batch is formed and routed, the batch service time is assumed equal to that for each

PWD in the batch. Inasmuch as average batch size is 1.12 PWDs (based on AMC-provided input), the effect of non-batching should be minimal on the PALT process.

9. The simulation runs examine PWD flow, PALT, and backlog at the MICOM PPD for FY85. At the commencement of the simulation, the system should not be empty and idle, as PWDs are already being processed on October 1, 1984. Consequently, when the simulation begins, FY84 PWDS (and possibly some from prior years) are flowing through the system. Thus, to permit system "warm-up" when the FY85 simulation commences, replicated (i.e., cloned) FY85 data is utilized throughout FY84.

E. DATA.

No model representation is useful without inputing current and valid data. Data required to simulate PWD flow consists of:

1. PWD arrival rate to the PPD.
2. The number and kinds of PWDs entering the system.
3. The number of PPD personnel assigned to each queue station.
4. "Hands-on" PPD server PWD processing times.
5. Delay times for PWD processing by non-PPD personnel.
6. Travel times between processing points.
7. Probabilities with which PWDs are routed along various paths.

The above data was provided by the study sponsor. Statistics on all funded Secondary Item Basic PWDs issued during FY85 are provided at Appendix D. These statistics are used to develop the aforementioned monthly average PWD interarrival time provided in the program code for the user-defined interarrival function, USERF(1). One must recall that the reciprocal of PWD arrival rate yields PWD interarrival time. The number and kinds of PWDs entering the system are provided in percentage form in parentheses at Fig. 1.

For example, 48.5% (.485) of all arriving PWDs are Special Buys. The number of PPD personnel assigned to each queue station is listed within each queue station box in the PWD flow at Appendix A. For example, queue station number one has two personnel currently assigned to it (Q1/2), while queue two has seventeen (Q2/17). Notional "hands-on" PPD server PWD processing times are provided in parentheses adjacent to queue station boxes. For example, by examining the Special Buy PWD flow chart, one notices this processing time for assigning a planning specialist is 1.45 hours, denoted (1.45). Delay times encountered while a PWD is being processed by non-PPD personnel is listed in the same fashion adjacent to the delay symbol. For example, the delay time for conducting a Small Business review of a Special Buy PWD is anywhere from 120 to 504 hours, with 216 hours being the most frequently encountered delay. This is denoted (120,216,504). Probabilities with which PWDs are routed along various paths are denoted in the following fashion. For example, 95% of all Special Buy PWDs are FMS, while 5% are GSA. This is denoted by ".95" and ".05," respectively, adjacent to the decision diamond labeled "Buy Type?" Thus, an incoming Special Buy PWD will have a 95% chance of being routed along the FMS subflow, and a 5% chance of being routed along the GSA. In other words, 95% of the time, the computer will route an arriving Special Buy PWD along the first subflow, and 5% of the time along the second.

F. MODEL OPERATION.

The PALT model can be operated in two modes: with actual data, and with simulated data. One operates the model with actual data to validate the model, i.e., to see whether it represents reality. Inasmuch as models are but approximations of real-world situations, output from a model run in the first mode usually reflects approximations of reality. Model output is a function of system stability; if the system is unstable, then small changes in data

input can yield large changes in output. If the system is stable, then small changes in input yield small changes in output. In other words, unstable systems are extremely difficult to model; sometimes, no model can represent an unstable system with any semblance of accuracy.

Use of simulated data in the PALT model consists of artificially realigning manpower levels to see their effects on PALT and on PWD backlog at the queue stations. For example, if one notes the current server allocation of two personnel at the first queue station results in an extremely long queue length (backlog) of PWDs, then, by artificially increasing the number of servers at this station, the backlog for this station will be reduced. This causes PWDs to be processed more quickly at queue one. Since these PWDs are consequently routed through this station more quickly, the backlog at other queues may increase. One thus observes that backlog at any queue station may have a direct influence on backlog at another. Therefore, by repeatedly artificially changing the backlog at the queue stations, one can attempt to arrive at a manpower allocation that minimizes PALT and backlog.

For the current model, fourteen queue stations are utilized, and, consequently, thousands of possible manpower allocations exist. Furthermore, each computer run of the program currently takes approximately one week. Therefore, each time the program is run, the major backlog points are examined, and reallocations performed to reduce major backlog areas and system PALT. This strategy results in approximate solutions, and should be continued until negligible improvements can be made.

Consequently, model output depends on the assumptions previously described as well as:

1. System stability.

2. Validity of utilized PWD flow. If exact flow is utilized, longer computer processing time is required; while if consolidated flow is used, then, although model inexactness appears, processing time is reduced.

3. Accuracy of input data. One often has to provide a best estimate as to, say, how long it takes to process a particular PWD type at a specified processing point. While this introduces modeling error, this situation is often unavoidable.

4. The number of simulations performed. To reduce statistical chance variation in output, repeated simulations utilizing a specific manpower allocation may have to be performed. In view of computer processing time constraints, a large number of repetitions is not possible at this time.

CHAPTER III

RESULTS

A. SIMULATION OUTPUT FORMATS.

Those SLAM processor-generated outputs essential for effective analysis of MICOM PWD flow are labeled Statistics for Variables Based on Observation, File Statistics, and Service Activity Statistics. For each utilized manpower allocation, these statistics were collected every 730 hours (approximately one month) of a two year simulated time period. This series of observations comprises a sequence of twenty-four equally spaced system "snapshots," thereby providing insight into the dynamic nature of the system under study. This series reveals that, with the current manpower allocation, the lengths of queues one and five increased dramatically during the two year period of simulated time. Appendix E provides output at 17520 hours into the simulation utilizing the current MICOM PPD manpower allocation.

Statistics for Variables Based on Observation lists the twenty-eight types and number of PWDs processed, as well as the following PALT variable values for each PWD type: average (mean), standard deviation, coefficient of variation (standard deviation divided by mean), minimum, and maximum. For example, by referring to Appendix E, one notices, by time 17520 hours, 9787 Small Purchases not exceeding $5000 (LE5KSP) were awarded contracts. Furthermore, the average PALT for these PWDs was 735.3 hours, the PALT standard deviation was 348.6 hours, the coefficient of variation was .4741 (47.41%), the minimum PALT was 388.5 hours, and the maximum PALT was 3483 hours. For all PWDs, independent of type (ALL), the average PALT by that time was 3218 hours (134 days (versus 136 in reality)), the standard deviation was

3284 hours, the coefficient of variation was 102 percent, minimum PALT was 388.5 hours, and maximum PALT was 14820 hours, with 17498 PWDs having been awarded contract.

File Statistics refers to the fourteen queue stations employed in the model. It lists, for each station, the average number of PWDs in the queue over time (average length), the standard deviation of the average number of PWDs in the queue over time (standard deviation), the maximum number of PWDs in the queue at any one time (maximum length), the current number of PWDs in the queue (current length), and the average waiting time of all PWDs that arrived to the queue, including those that did not wait for service, i.e., those that were processed immediately upon entering the queue station (average waiting time). For example, by referring to Appendix E, one notes the average length of the first queue station for the two year time period in question was 4948.7441 PWDs, the standard deviation was 2796.3243 PWDs, the maximum length was 9830 PWDs, the current length (at time 17520 hours) was 9826 PWDs, and the average waiting time was 4424.7000 hours. There were times when the queues were empty (i.e., of zero length), as well as when the waiting time for a PWD to be serviced equaled zero (i.e., the queue station had a server available to immediately process a PWD upon its arrival to the station). These zero values were utilized in calculating average length and average waiting time.

Service Activity Statistics refers to the PPD personnel manning the fourteen queue stations involved in the model. Referring again to Appendix E, one notes the two personnel processing PWDs at the first queue station were performing service activity number one. At this station, 1.9997 PWDs, on the average, were in service over the two year time period. Inasmuch as there is a one-to-one correspondence between the number of PWDs in service and the number of busy servers (i.e., a server processes only one PWD at a time), this

signifies that 1.9997 of the servers at the first queue station were, on the average, busy. In other words, this station was operating very close to capacity. The standard deviation of the number of PWDs in service over time at this station was .0214, 2 servers were busy at the conclusion of the time period, at most 2 servers were idle at any time, and at most 2 servers were busy.

B. OUTPUT UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION.

The first simulation was conducted with current MICOM PPD manpower data provided by the study sponsor. This allocation of PPD personnel at the queue stations appears at Table 2. A total of 159 personnel are allocated to the PPD.

The mean PALT after 17520 hours of simulated time for each of the 28 procurement action types listed at Table 1 is provided at Table 3. From Appendix E one notes the coefficient of variation of PALT for each PWD type with more than one entry is over thirty percent, and that for all PWDs collectively is 102 percent. These values reflect the high variability of PWD travel time through the procurement process.

Table 4 provides the maximum and current number of PWDs in the queue stations at 17520 hours, as well as the average waiting time at each station. Major procurement backlog occurs at queue stations one, two, and five, indicating additional processing personnel are probably required at these points.

One should note the excessive backlog of 9826 PWDS at the first queue station 17520 hours into the simulation. This suggests the utilized "hands-on" processing time for assigning a Planning specialist may be in error; it probably should be decreased.

QUEUE STATION	FUNCTION	NUMBER OF SERVERS
1	Planning	2
2	Planning	17
3	Planning	3
5	BS Division	1
6	BS Branch A	28
7	BS Branch A	4
8	BS Branch B	36
9	BS Branch B	4
10	BS Branch C	34
11	BS Branch C	4
12	BS Branch A	1
13	BS Branch B	1
14	BS Branch C	1
15	BS Pricing	23
		159

Note: The fourth queue station was deleted at an early stage of the analysis. To avoid the chance of programming error, the stations were not renumbered.

TABLE 2: Current MICOM PPD Manpower Allocation

PWD TYPE	MEAN PALT Hours	Days
LE5KSP	753.3	31
SBGSASP	5872	245
SBFMSIPDSP	6078	253
SBFMSIPDPBOA	8188	341
SBFMSIPDUBOA	6774	282
SBFMSIPDRFP	8628	360
SBFMSIPDIFB	6710	280
SBFMSNIPDSP	6509	271
SBFMSNIPDPBOA	9155	381
SBFMSNIPDUBOA	6342	264
SBFMSNIPDRFP	9056	377
SBFMSNIPDIFB	7199	300
UG5KLE25KFCSP	5402	225
UG5KLE25KFCUBOA	5435	226
UG5KLE25KNFCSP	5613	234
UG5KLE25KNFCUBOA	10150	423
UG25KFCUBOA	-	- *
UG25KFCRFP	7924	330
UG25KNFCUBOA	12410	517
UG25KNFCRFP	7986	333
RG5KLE25KFCSP	5953	248
RG5KLE25KFCPBOA	7092	296
RG5KLE25KNFCSP	5711	238
RG25KFCPBOA	7380	308
RG25KFCRFP	9233	385
RG25KNFCRFP	6055	252
RG25KNFCIFB	7001	292
ALL	3218	134

* No PWDs of this type were generated during the simulation. This is a consequence of the fact that, based on AMC input, the chance of a PWD of this type actually occurring in reality is almost nil.

TABLE 3: Mean Palt 17520 Hours into Simulation Utilizing Current MICOM PPD Manpower Allocation

QUEUE STATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME	
			Hours	Days
1	9830	9826	4425	184
2	100	91	61	2.5
3	15	3	3.6	.15
5	581	581	2970	124
6	21	0	.06	0
7	13	0	.66	0
8	7	0	0	0
9	18	0	.75	.03
10	11	0	0	0
11	13	0	.73	.03
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0

TABLE 4: Queue Station Data 17520 Hours into Simulation Utilizing Current MICOM PPD Manpower Allocation

C. OUTPUT UTILIZING FIRST MICOM PPD MANPOWER REALLOCATION.

It appears, based on output utilizing the current manpower allocation, that major procurement backlog occurs at queue stations one, two, and five. Even though these results are subject to statistical chance variation, they are still good estimates of the current state-of-affairs, assuming the input data is valid. Consequently, to reduce this backlog, more servers should be allocated to these three stations.

This is where one tries to answer "What if ... ?": what would happen to average PALT if additional manpower were allocated to these three queue stations? This is where the power of computer simulation arises. One does not actually have to physically alter manpower allocation at MICOM's PPD and wait to see its effect on average PALT. By merely changing manpower input data in the program code, one runs the program to simulate the effect of this manpower reallocation. The results are examined, and if they are within acceptable limits (i.e., the average PALT obtained has been reduced to an acceptable level), then the simulations are terminated. If, however, the new average PALT obtained is not acceptable, then another reallocation of personnel is made, and the process continues. Inasmuch as there are thousands of possible manpower allocations, one cannot continue the reallocation process indefinitely; computer processing time and other time constraints usually limit the number of simulations to be performed.

Some sort of algorithm must be developed to ensure a consistent manpower reallocation procedure. The algorithm employed in this project consists of first evaluating, for each queue station, a usage ratio (UR) in conjunction with the manpower allocation currently being employed. This UR, listed at Table 5 for each queue station, utilizing current manpower allocation, is defined as the average queue utilization divided by the server capacity.

QUEUE STATION	SERVER CAPACITY	AVERAGE UTILIZATION	UR
1	2	1.9997	.9999
2	17	16.4651	.9685
3	3	2.6490	.8830
5	1	.8485	.8485
6	28	16.0398	.5728
7	4	2.2367	.5592
8	36	15.7117	.4364
9	4	2.2360	.5590
10	34	15.9368	.4687
11	4	2.2848	.5712
12	1	.0047	.0047
13	1	.0073	.0073
14	1	.0073	.0073
15	23	1.5438	.0671

TABLE 5: Queue Station Usage Ratio (UR) Values 17520 Hours into Simulation Utilizing Current MICOM PPD Manpower Allocation

A fuzzy algorithm is an ordered sequence of instructions which may contain fuzzy (i.e., imprecise) assignment and conditional statements (e.g., if backlog at queue one is large, then the UR has a high value). Roughly speaking, a fuzzy algorithm is an ordered set of fuzzy instructions which, upon execution, yield an approximate solution to a specified problem [3]. The following fuzzy algorithm is utilized in this analysis:

1. Remove some servers from those queue stations with small UR values and large server capacity.

2. Place these servers in those queue stations with high UR values and high backlog.

3. Execute program code with new server allocation.

4. Examine results. If PALT and backlog are reduced to acceptable levels, stop. Else, go to step one, provided computer cost limits have not been exceeded.

The algorithm is used as follows:

1. Queue stations twelve through fifteen have smallest UR values. Of these, only queue fifteen has more than one server. Consequently, servers will be removed from queue fifteen.

2. Queue stations one, two, three, and five have highest UR values, but only queues one, two, and five have excessive lengths. However, all PWDs, when flowing through the PPD, pass from the first queue to the second, and then to the third. Hence, backlog at queue three will be affected by any increase in server capacity at queues one and two. Consequently, servers will will be removed from queue fifteen, and added to queues one, two, three, and five. It was decided to remove eighteen servers from queue fifteen, and to add two servers to queue one, ten to queue two, four to queue three, and two to queue five.

3. Table 6 provides the mean PALT for each PWD type 17520 hours into the simulation, utilizing this first manpower reallocation. One notes the mean PALT for almost all PWD types has been reduced, with the overall mean PALT reduced by more than twenty percent, from 134 days to 107. Table 7 provides queue lengths and average waiting times for this first reallocation, 17520 hours into the simulation. One can also see that the length of the first queue station has been reduced by a factor of twenty, while the length of the second has increased by a factor of forty-three, due to more PWDs being processed per unit time at queue one, causing queue two to receive greater PWD influx. Note the decrease in average waiting time for queues one and five, and the increase for queue two. UR values and server capacities for the first reallocation are provided at Table 8. Assuming the new PALT and backlog values listed at Tables 6 and 7 are acceptable, the algorithm terminates. However, if these values are not tolerable, the algorithm suggests removing servers from queues eight, ten, and possibly fifteen, and adding them to queues one, two, and possibly six. Output for the first reallocation appears at Appendix F.

PWD TYPE	MEAN PALT Hours	Days
LE5KSP	744.5	31
SBGSASP	2812	117
SBFMSIPDSP	3549	148
SBFMSIPDPBOA	5010	209
SBFMSIPDUBOA	3247	135
SBFMSIPDRFP	4716	197
SBFMSIPDIFB	4307	179
SBFMSNIPDSP	4058	169
SBFMSNIPDPBOA	5110	213
SBFMSNIPDUBOA	3908	163
SBFMSNIPDRFP	5112	213
SBFMSNIPDIFB	4843	202
UG5KLE25KFCSP	3040	127
UG5KLE25KFCUBOA	2833	118
UG5KLE25KNFCSP	4213	176
UG5KLE25KNFCUBOA	-	- *
UG25KFCUBOA	4624	193
UG25KFCRFP	5688	237
UG25KNFCUBOA	6181	258
UG25KNFCRFP	6575	274
RG5KLE25KFCSP	4192	175
RG5KLE25KFCPBOA	6454	269
RG5KLE25KNFCSP	3847	160
RG25KFCPBOA	6230	260
RG25KFCRFP	6559	273
RG25KNFCRFP	5296	221
RG25KNFCIFB	5967	249
ALL	2560	107

* No PWDs of this type were generated during the simulation. This is a consequence of the fact that, based on AMC input, the chance of a PWD of this type actually occurring in reality is almost nil.

TABLE 6: Mean PALT 17520 Hours into Simulation Utilizing First MICOM PPD Manpower Reallocation

QUEUE STATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME Hours	Day
1	960	503	341.65	14
2	3888	3879	1203.75	50
3	12	0	.31	.01
5	11	2	13.13	.55
6	65	0	1.23	.05
7	23	0	1.41	.06
8	23	0	.04	0
9	22	0	1.26	.05
10	25	0	.10	0
11	21	0	1.31	.05
12	0	0	0	0
13	1	0	1.16	.05
14	0	0	0	0
15	2	0	3.31	.14

TABLE 7: Queue Station Data 17520 Hours into Simulation Utilizing First MICOM PPD Manpower Reallocation

QUEUE STATION	SERVER CAPACITY	AVERAGE UTILIZATION	UR
1	4	3.9144	.9786
2	27	26.2074	.9706
3	7	4.0486	.5784
5	3	2.1575	.7192
6	28	21.2539	.7591
7	4	2.7808	.6952
8	36	20.7459	.5763
9	4	2.6918	.6730
10	34	21.5679	.6344
11	4	2.7366	.6842
12	1	.0063	.0063
13	1	.0083	.0083
14	1	.0146	.0146
15	5	1.7486	.3497

TABLE 8: Queue Station UR Values 17520 Hours into Simulation Utilizing First MICOM PPD Manpower Reallocation

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS.

The algorithm presented in the previous chapter is an iterative method for analyzing an exceedingly complex system composed of hundreds of nodes and routing conditions, each of which interact with each other and influence output. When properly executed, the procedure achieves, with each iteration, a more efficient manpower allocation at major MICOM PPD processing points for PALT reduction and thereby improves overall contract execution performance for Secondary Items. By repeatedly realigning manpower at the queue stations and executing the program for each such reallocation, one can estimate the effects of such reallocations on PALT.

It is obvious from the simulations performed that the current allocation of MICOM PPD manpower resources is suboptimal. Just one simulated reallocation decreased average PALT by over twenty percent. Further simulations can and will be performed to approach the near optimal alignment.

The PALT model does not replicate the effects of manpower reallocation on PALT, but merely estimates them. No simulation output duplicates reality all the time. Such output is a function of the stability of the system under study, the validity of the utilized PWD flow, the accuracy of the input data, and the amount of statistical chance variation arising from the use of random number generators employed by computer hardware.

An insight into the stability of the MICOM Secondary Item system is obtained by referring to Appendix G. Two simulations of the Special Buy PWD flow were made, utilizing the current manpower allocation. Only 1000 PWDs were created to shorten computer processing time. Both portray PALT output

and backlog. The rationale for this is that if the difference in output for these and planned additional simulations is small, then the system is reasonably stable, and the statistical chance variation is minimal. The difference in corresponding output for these first two simulations is small; average PALT differed by less than two percent. This indicates several runs for each manpower allocation for the complete flow are probably not necessary. Consequently, to achieve a reasonably optimal manpower alignment, what is required is that the algorithm be repeatedly performed until an acceptable PALT and backlog level are obtained.

There are two powerful uses of the PALT simulation model which arise from whether altered flow or altered input data are utilized. Although the PALT model represents only Secondary Item Basic PWD flow through the MICOM PPD, should the system's process flow change, the program code can be altered. For example, it may be desirable to expand the model to develop a composite model with MSC unique parameter values by defining the PWD flow for each MSC using the MICOM PALT model as a baseline. Furthermore, one may wish to: distinguish between work-in-process and true backlog; stratify procurement resources into blue-collar, white-collar, and overhead types of labor; and get a handle on utilization of procurement resources in light of the preceding. If altered processing times are input to the system, then PALT and backlog will also be affected. Just what effect the preceding will have on contract execution performance, and its measurement thereof, is unknown; however, by simulating any proposed changes, their effects can be estimated.

B. RECOMMENDATIONS.

Several recommendations concerning the MICOM PPD PALT model are in order:

1. PWD processing time data utilized in this report is notional in nature: single numbers are used for each. Such data in reality follow some

probability distribution, and should be analyzed further. Said distributions should be input instead of the notional ones currently employed. The utilized time for assigning a planning specialist (queue station 1) may be erroneous and should be verified. Development and use of an activity/time matrix log attached to each purchase request should assist in creating an appropriate informational database for this purpose.

2. PWD delay times incurred during processing by non-PPD personnel are assumed to possess triangular probability distributions. Such distributions are usually employed in the absence of sufficient data. Consequently, sufficient records of these delay times should be made, if they do not exist; otherwise, they should be incorporated into the model.

3. Data on PWD travel time between PPD processing points should be collected and incorporated into the model. Assuming an instantaneous travel time between these points is a source of modeling error. Travel time between two processing points that are not both part of the PPD may remain incorporated into the delay times discussed in item 2 above.

4. Repeated simulations of the model utilizing a dedicated computer system should be undertaken to arrive at an optimal manpower allocation. Such a system should reduce considerably the time for each simulation to be conducted. Appendix H lists the computer hardware and software utilized in this project.

5. Any allegedly optimal simulated manpower configuration output must be viewed with caution. One will be confident such output is near optimal (i.e., one utilizes a single value for the manpower allocation at each queue station vice a set of values; e.g., using a mean value instead of a confidence interval) only if,

a. The utilized PWD flow is complete and accurate.

b. All input data is complete and accurate.

c. The program code is an error-free "snapshot" of the utilized PWD flow.

d. The computer commits no numerical rounding errors.

If the model is validated and the simulation output appears reasonable, then one implements the suggested manpower allocation, and views the results. If actual results agree well with those simulated, then one has probably optimized average PALT. However, if actual and simulated results differ marketedly, then not all these assumptions are valid. Investigation into the source of the error is subsequently warranted.

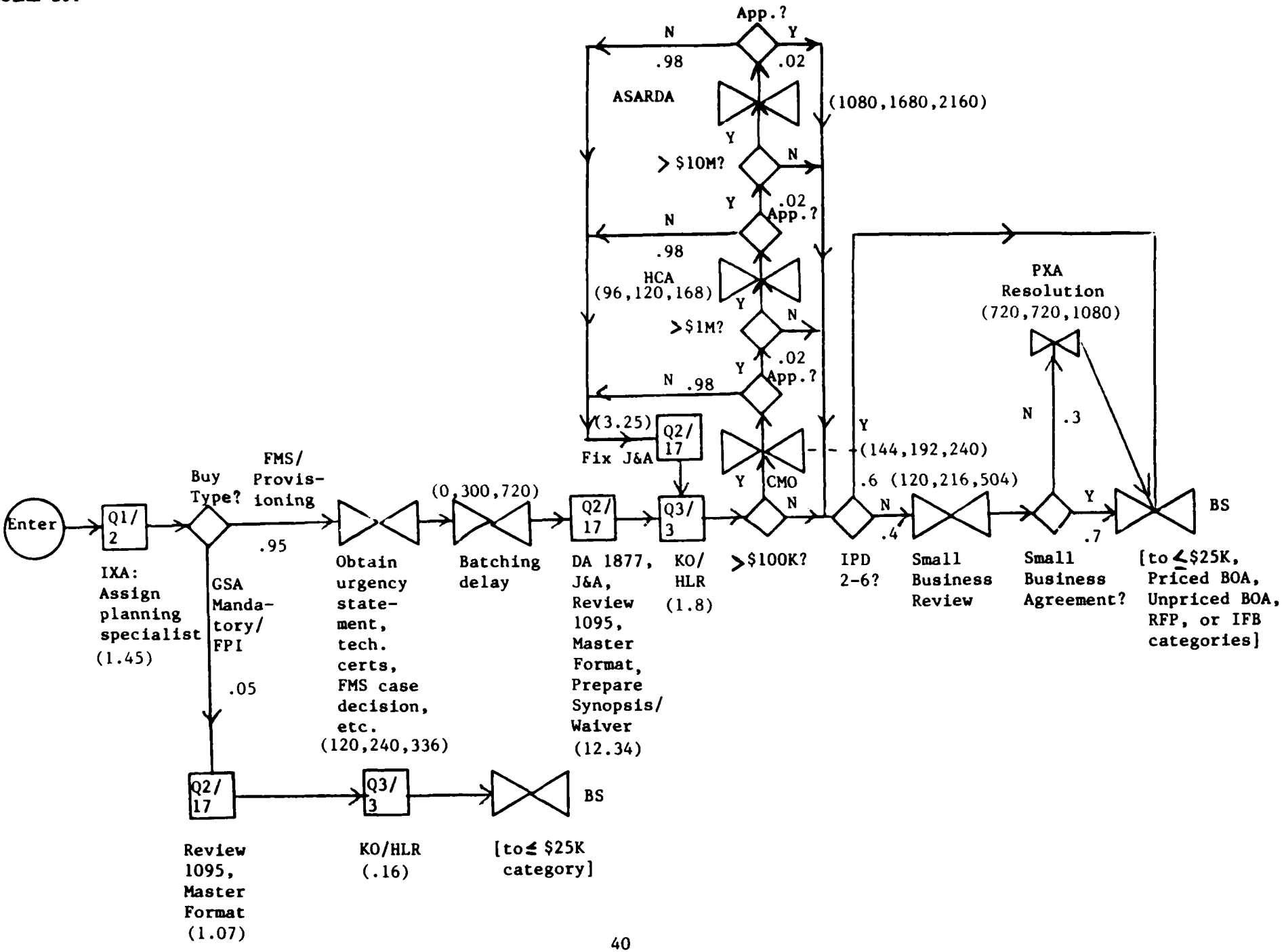
As a follow-on to this report, several simulation runs of the PALT model, utilizing various manpower allocations, will be performed to arrive at a reasonably optimal manpower alignment for the MICOM PPD. The results will be analyzed and forwarded to the study sponsor in a subsequent report.

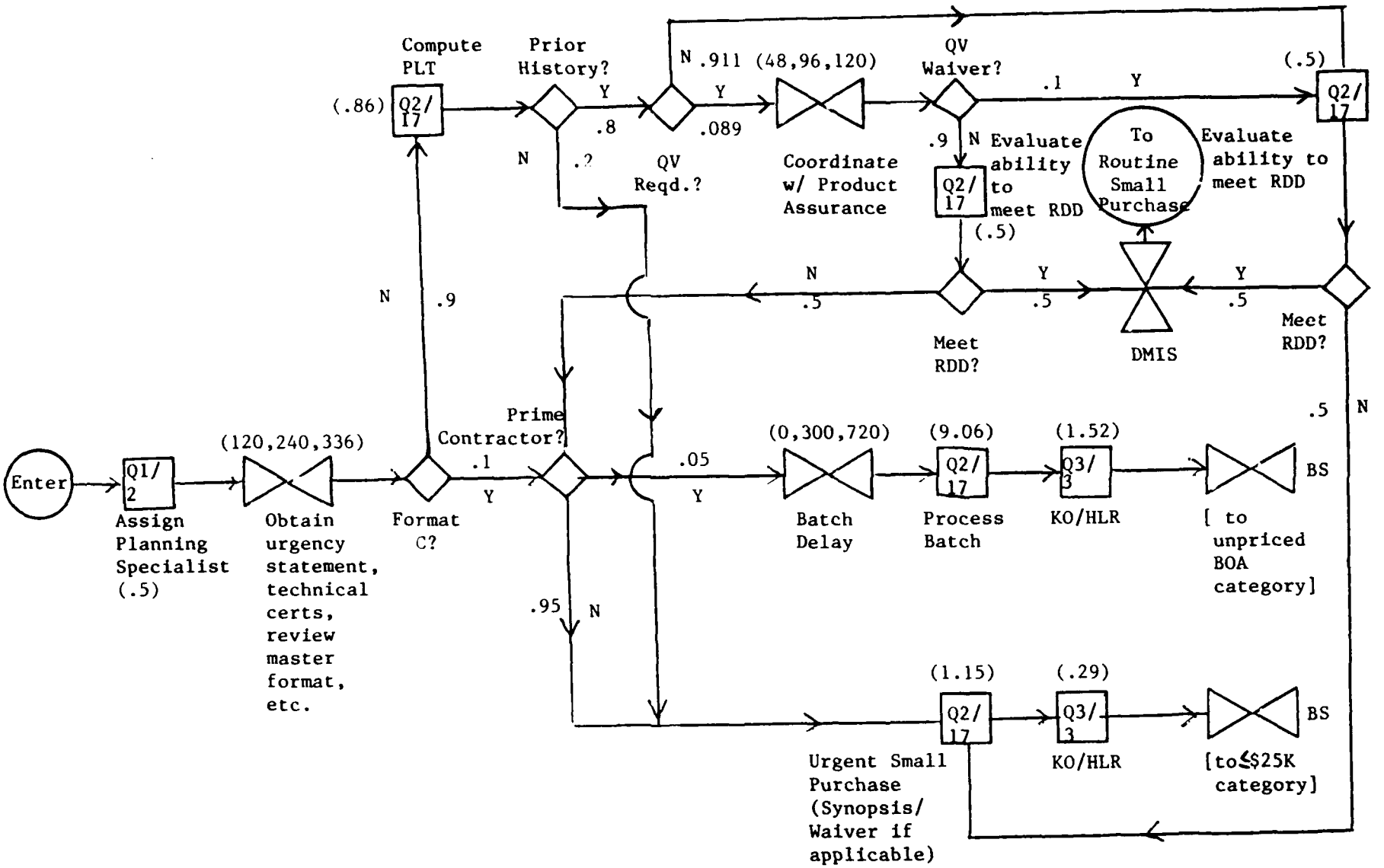
Furthermore, it is anticipated the model will be expanded to other MSCs using current delimiters, i.e., Secondary Item Contract Execution, including such modeling factors as variable PWD arrival rates (as opposed to average values), cancellations, prioritizations (as opposed to utilizing the FIFO selection rule), amendments, and modifications. Major items and research and development will be subsequently incorporated into model development.

APPENDIX A

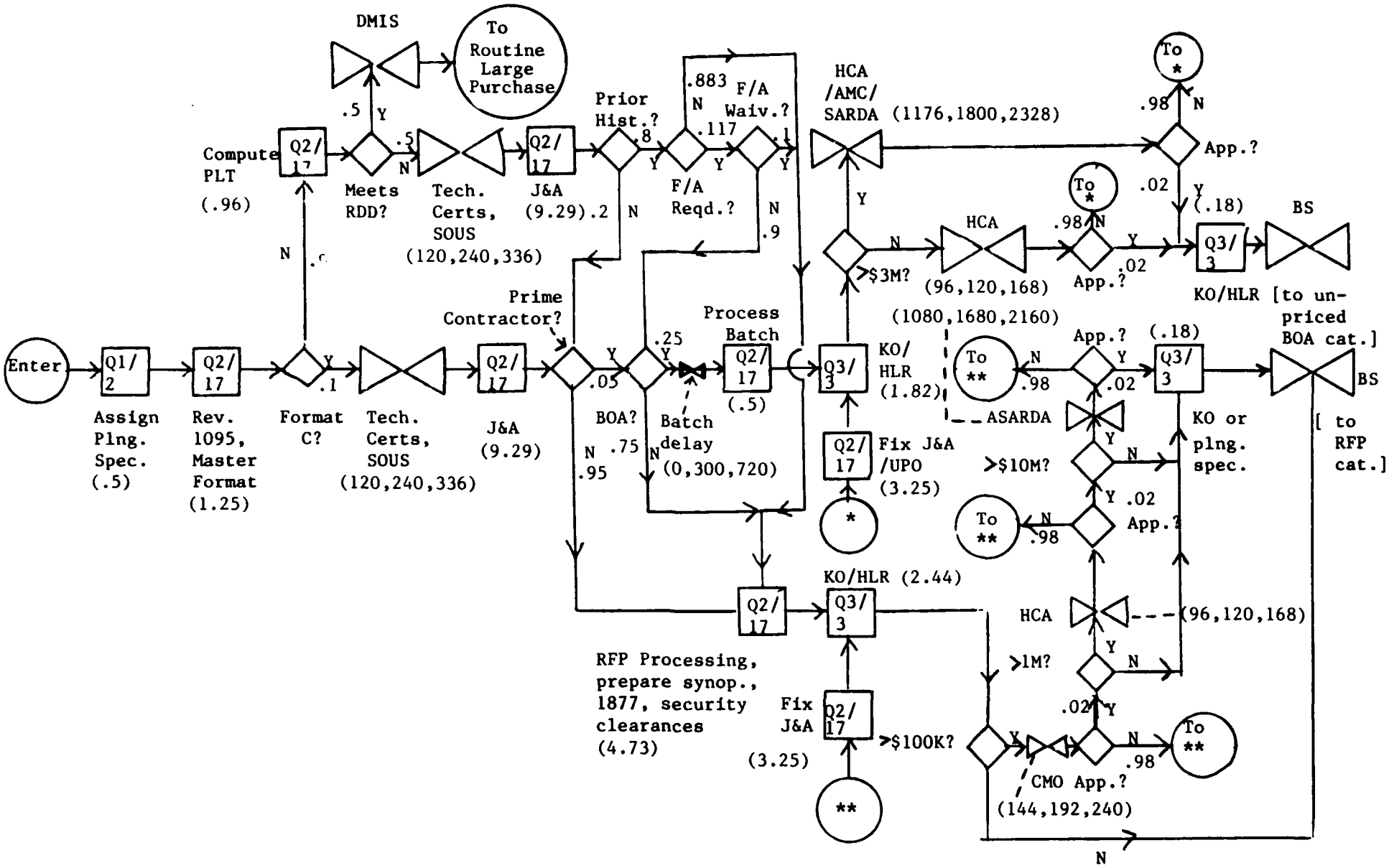
MICOM PPD PWD FLOW

SPECIAL BUY

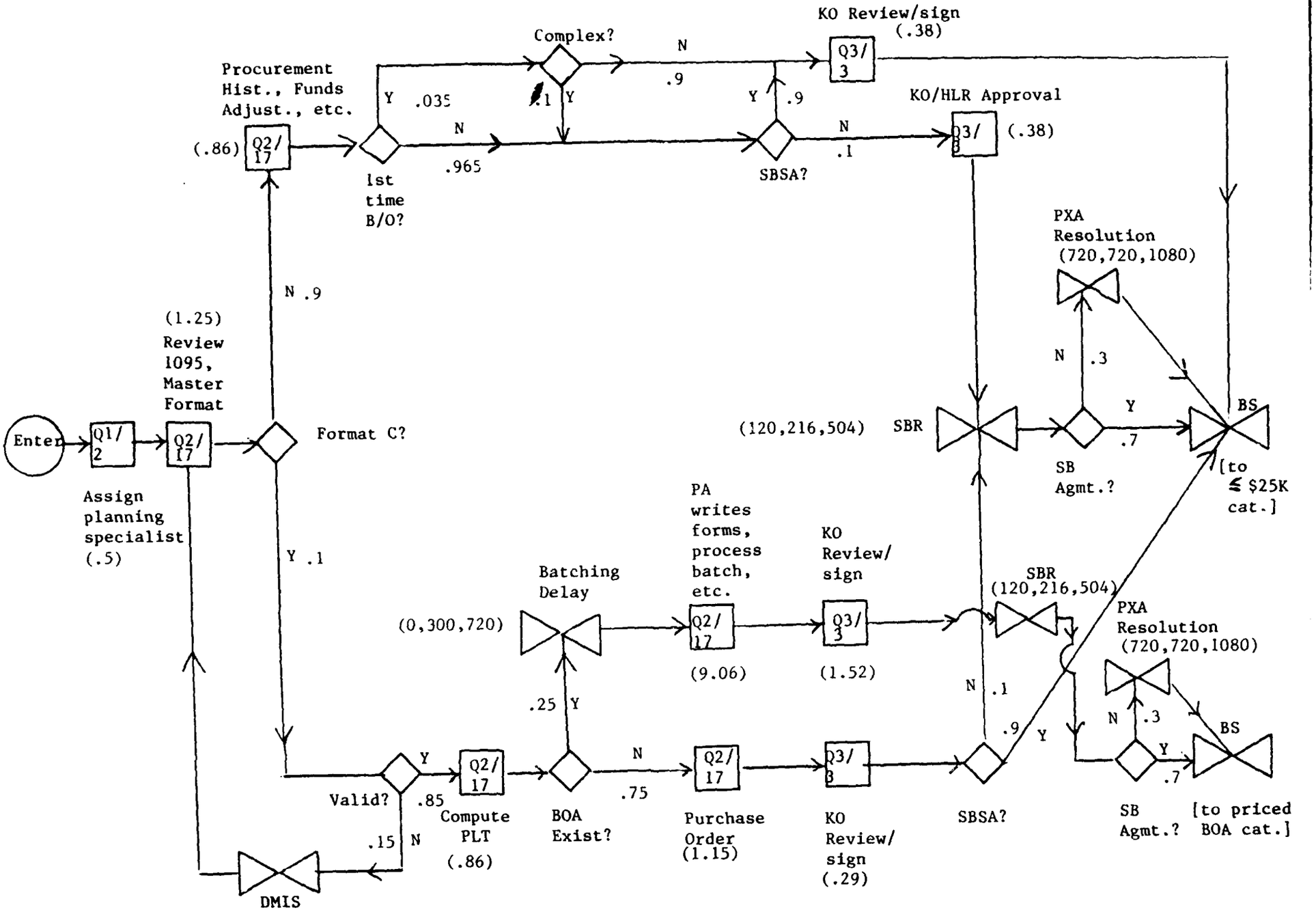

Enter
Q1/ 2
IXA: Assign planning specialist (1.45)
Buy Type?
FMS/ Provis-ioning
.95
GSA Manda-tory/ FPI
.05
Q2/ 17
Review 1095, Master Format (1.07)
Q3/ 3
KO/HLR (.16)
BS
[to ≤ $25K category]
(0,300,720)
Obtain urgency state-ment, tech. certs, FMS case decision, etc. (120,240,336)
Batching delay
Q2/ 17
DA 1877, J&A, Review 1095, Master Format, Prepare Synopsis/ Waiver (12.34)
Q3/ 3
KO/ HLR (1.8)
>$100K?
Fix J&A
(3.25)
Q2/ 17
App.?
N .98
Y .02
ASARDA
(1080,1680,2160)
>$10M?
HCA (96,120,168)
>$1M?
CMO
(144,192,240)
.6 (120,216,504)
IPD 2-6?
.4
Small Business Review
Small Business Agreement?
.3
.7
PXA Resolution (720,720,1080)
[to ≤ $25K, Priced BOA, Unpriced BOA, RFP, or IFB categories]


Enter
Q1/ 2
Assign Planning Specialist (.5)
(120,240,336)
Obtain urgency statement, technical certs, review master format, etc.
Format C?
N
.9
Y
.1
Prime Contractor?
N
.95
Y
.05
(.86)
Q2/ 17
Compute PLT
Prior History?
Y
.8
N
.2
QV Reqd.?
N
.911
Y
.089
(48,96,120)
Coordinate w/ Product Assurance
QV Waiver?
Y
.1
(.5)
Q2/ 17
.9
N
Q2/ 17
Evaluate ability to meet RDD
(.5)
To Routine Small Purchase
Evaluate ability to meet RDD
N
.5
Y
.5
Meet RDD?
DMIS
Y
.5
Meet RDD?
.5
N
(0,300,720)
Batch Delay
(9.06)
Q2/ 17
Process Batch
(1.52)
Q3/ 3
KO/HLR
BS
[to unpriced BOA category]
(1.15)
Q2/ 17
Urgent Small Purchase (Synopsis/ Waiver if applicable)
(.29)
Q3/ 3
KO/HLR
BS
[to ≤$25K category]

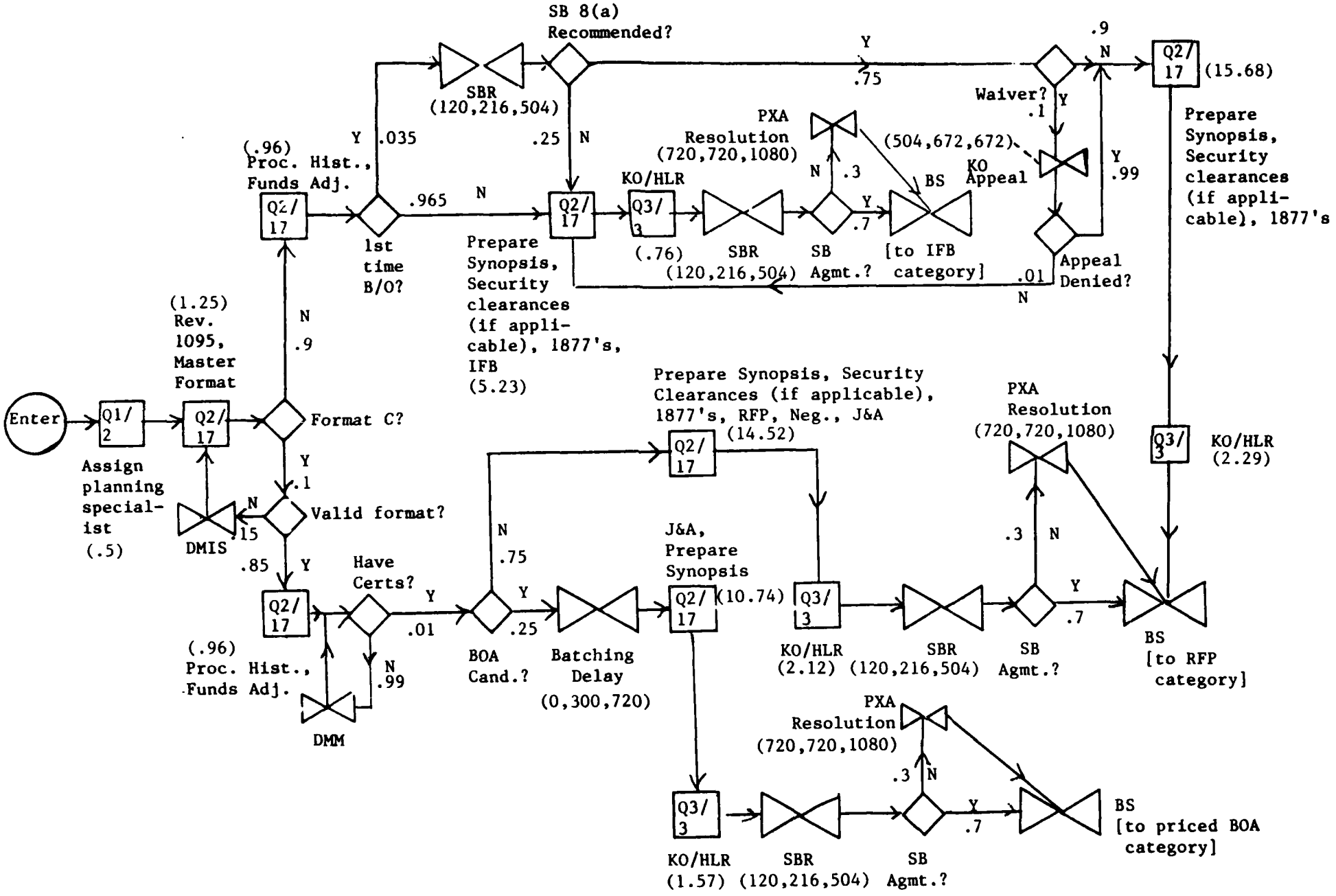
URGENT LARGE PURCHASE



ROUTINE SMALL PURCHASE

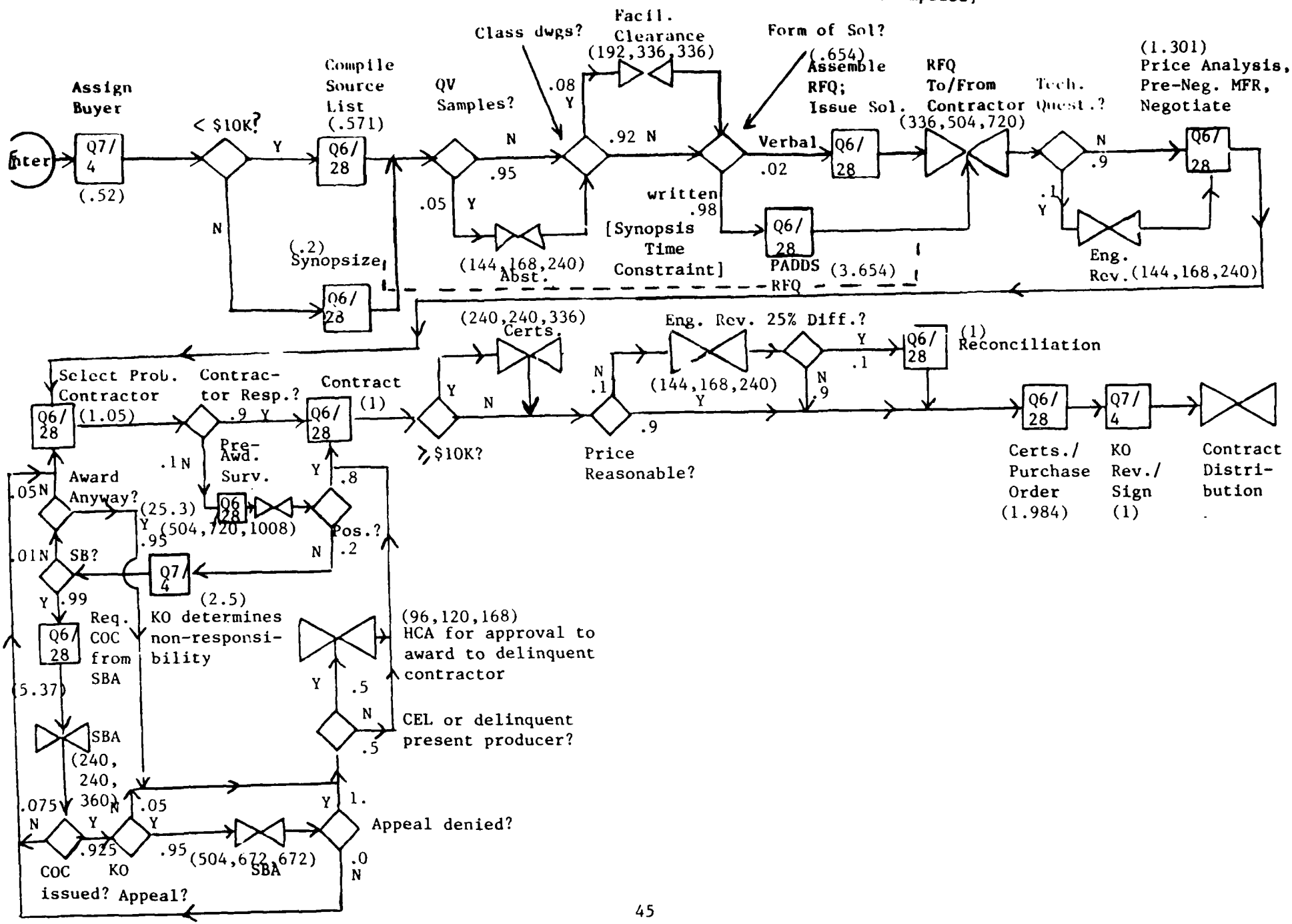


ROUTINE LARGE PURCHASE

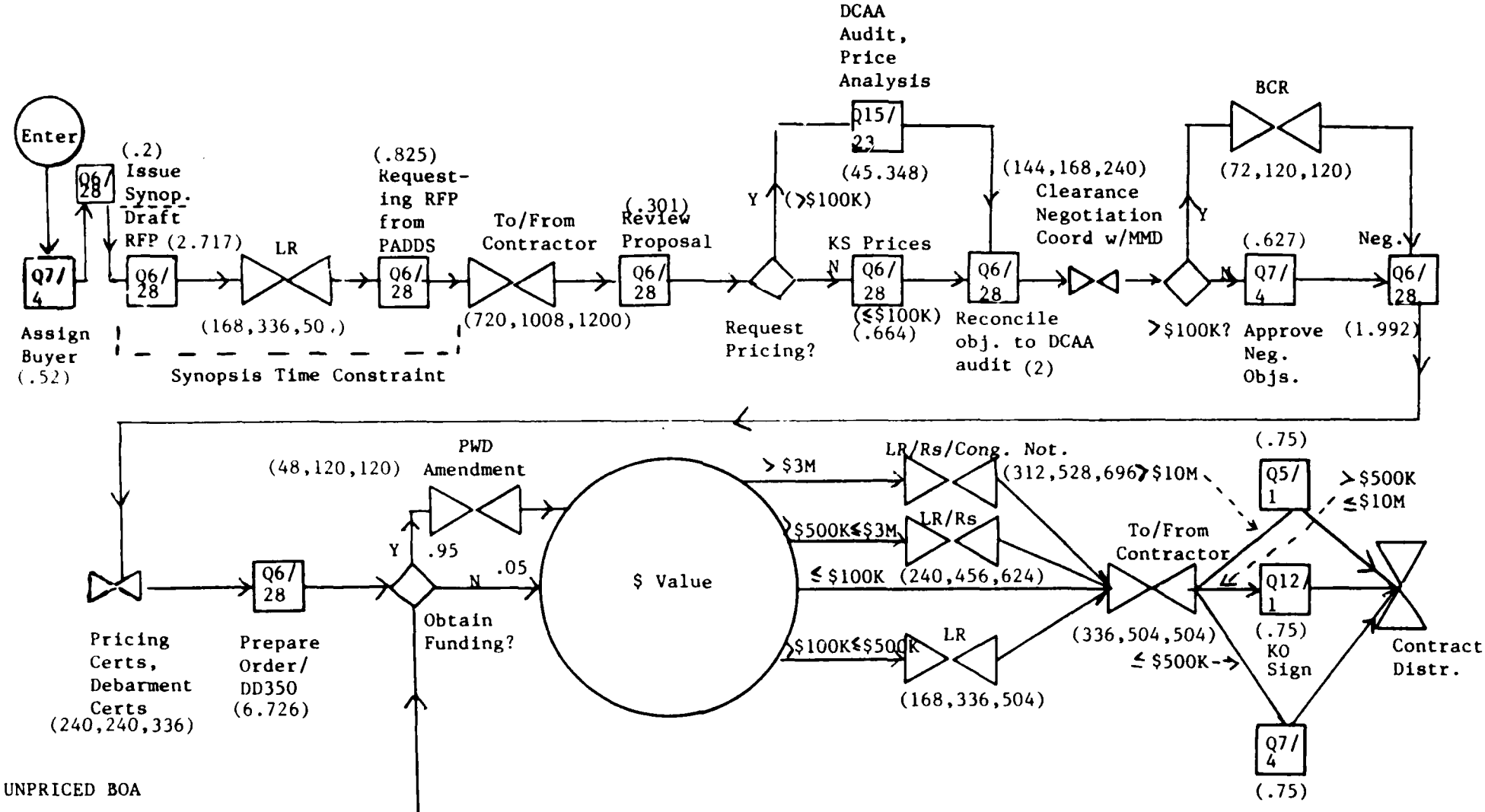


SMALL PURCHASE PROCEDURE
(≤ $25K)

[Branch A; figures for branches B and C are implied]

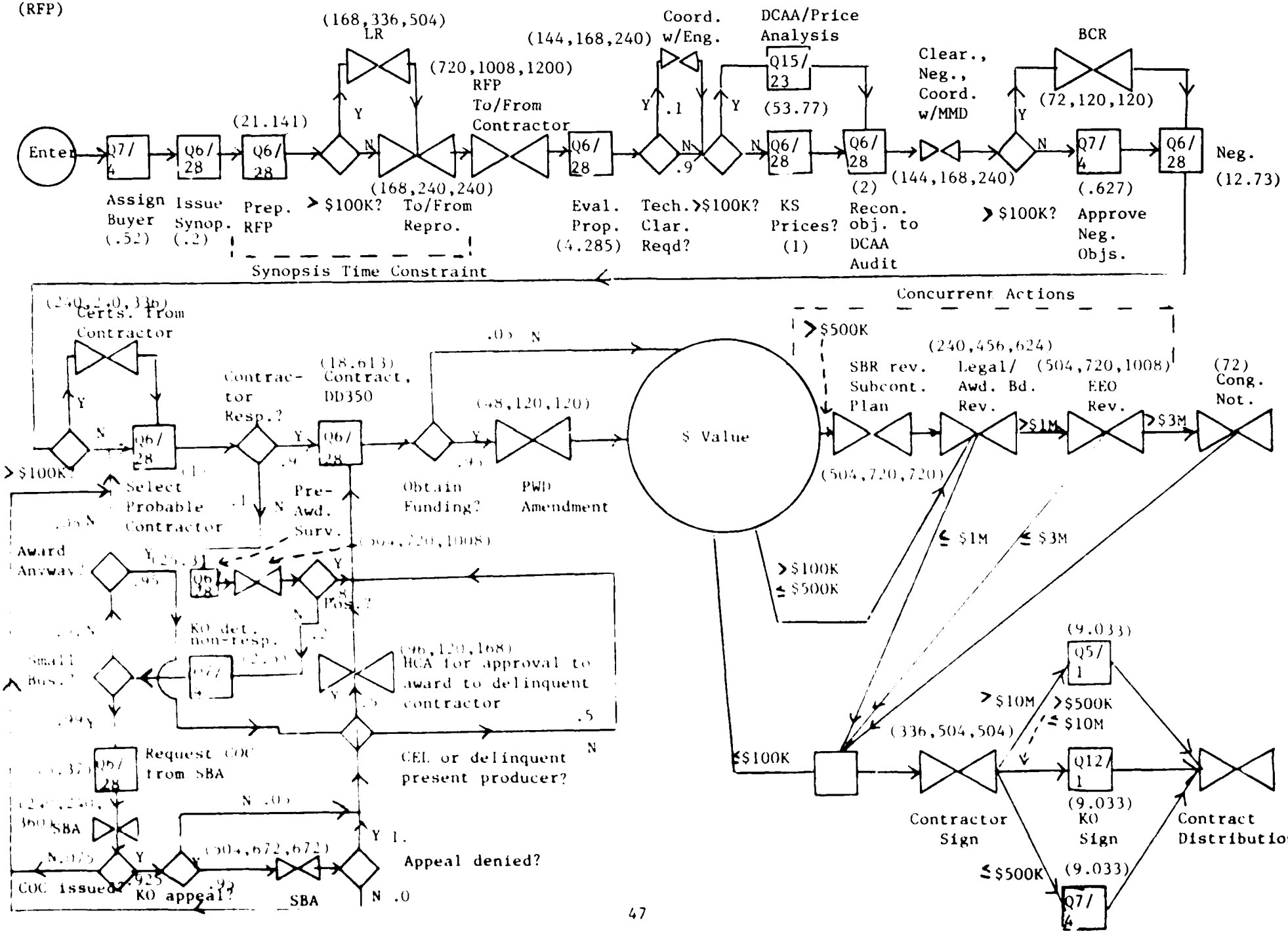


PRICED BASIC ORDERING AGREEMENT (BOA) [Branch A; figures for branches B and C are implied]



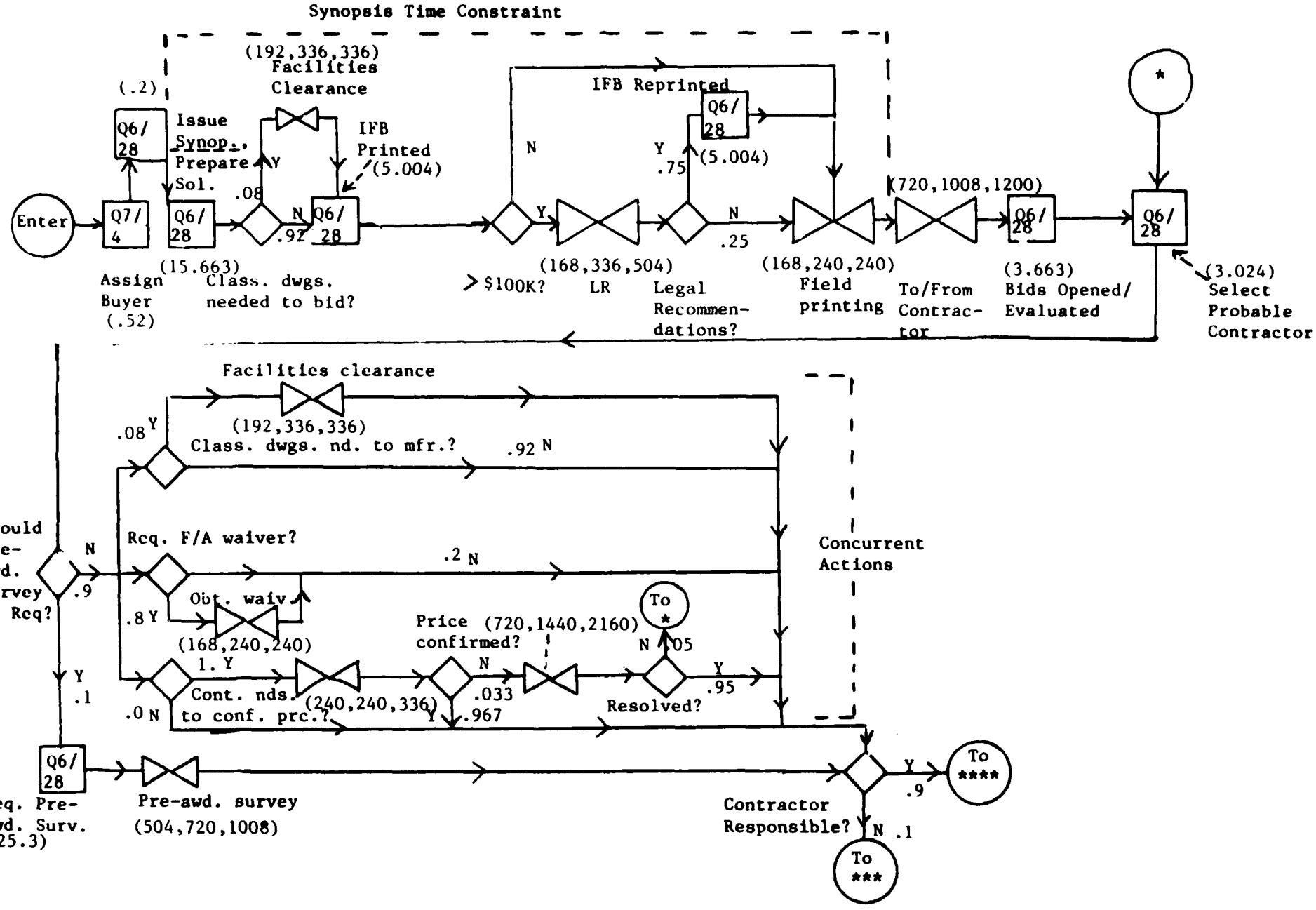
REQUEST FOR PROPOSAL
(RFP)

(Branch A; figures for branches B and C are implied).



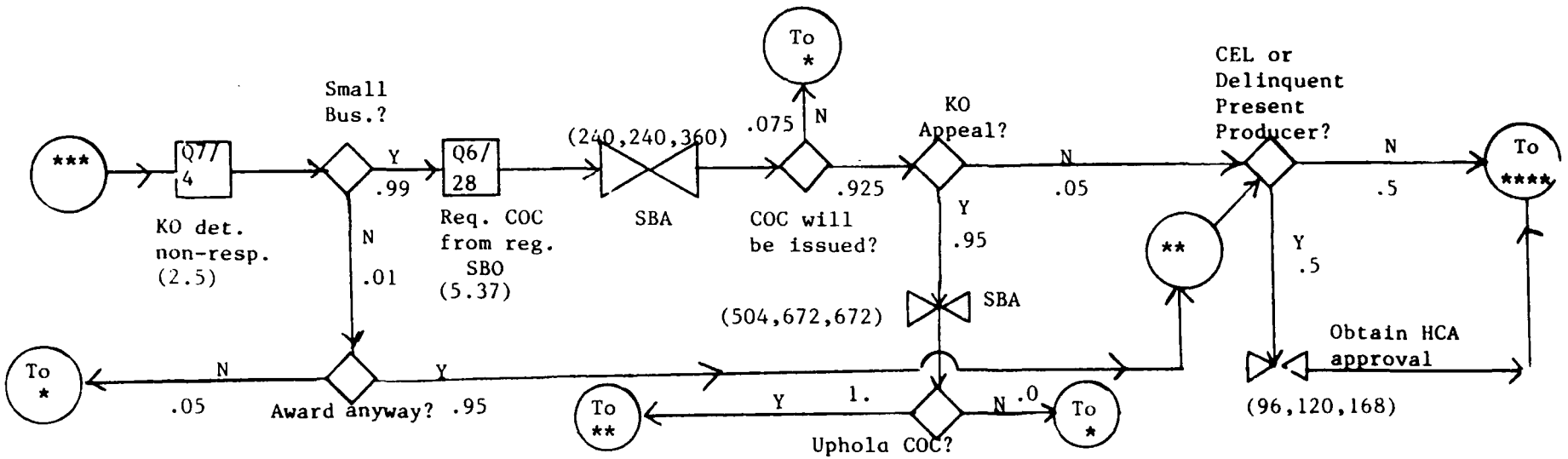
INVITATION FOR BID (IFB)

(Branch A; figures for branches B and C are implied)



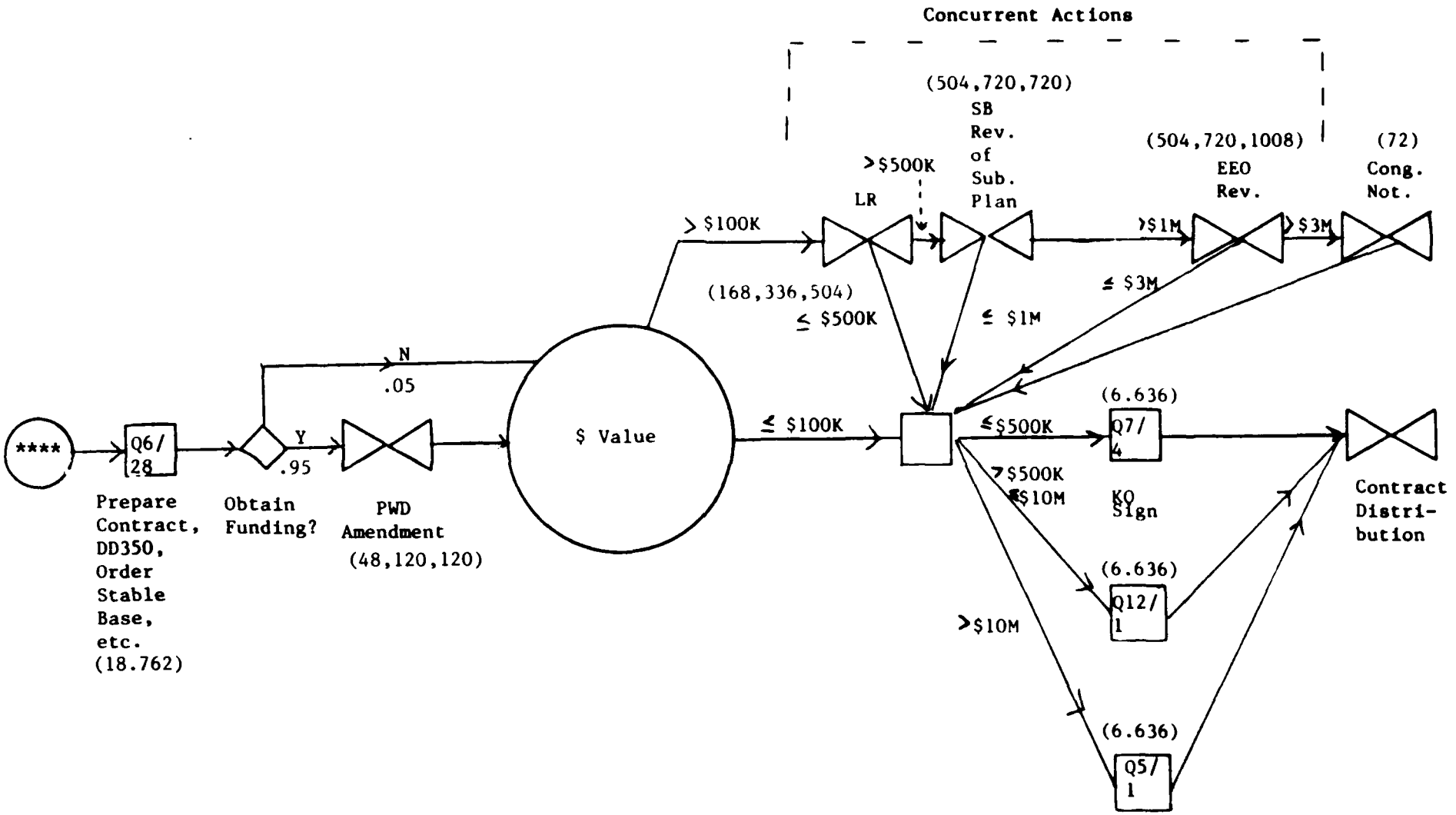
IFB (con't)

(Branch A; figures for branches B and C are implied)



IFB (con't)

(Branch A; figures for branches B and C are implied)



APPENDIX B

PALT MODEL PROGRAM CODE

```
GEN,WHITING JOHN WICKER,MICOMSPARES,9/10/86;
;
;     THIS PROGRAM, AUTHORED BY WHITING JOHN WICKER OF THE ARMY
;     PROCUREMENT RESEARCH OFFICE (APRO), SIMULATES MISSILE
;     COMMAND (MICOM) BASIC PROCUREMENT WORK DIRECTIVE (PWD) FLOW
;     FOR FY85, BASED UPON INPUT DATA PROVIDED BY ARMY MATERIAL
;     COMMAND (AMC) AND MICOM.
;
;     THE SIMULATION COMMENCES AT THE BEGINNING OF FY84, AND TERMI-
;     NATES AT THE END OF FY85.  REPLICATED FY85 DATA IS USED FOR
;     FY84 FOR SYSTEM WARM-UP AND BIAS REDUCTION.
;
;     ALL RESULTS ARE SUBJECT TO STATISTICAL CHANCE VARIATION.
;
;     FOR FURTHER INFORMATION ABOUT THIS PROGRAM, PLEASE CONTACT:
;
;                    W. JOHN WICKER
;                    DCSLOG
;                    ATTN: DALO-PBO
;                    BLDG. T-12113
;                    FORT LEE, VA 23801-6045
;
;                    AV 687-1146/1404
;                    COMM 804-734-1146/1404
;
LIMITS,15,12,18000;                    15 QUEUES.
;                                      12 ATTRIBUTES PER PWD.
;                                      18000 = MAXIMUM NUMBER OF
;                                      CONCURRENT ENTRIES IN ALL FILES.
;
MONTR,SUMRY,730.,730.;                 PRINT FIRST SUMMARY REPORT AT
;                                      730 HOURS (= 1/24 OF TOTAL TIME
;                                      PERIOD OF 2 YEARS), AND EVERY 73
;                                      HOURS THEREAFTER).
;
;                                      BATCHING NOT UTILIZED.
;
SEEDS,9375295(1)/YES;                  INITIALIZE UNNORMALIZED RANDOM
;                                      NUMBER SEED FOR STREAM 1 TO
;                                      9375295 AND USE THIS VALUE AS
;                                      THE FIRST VALUE FOR EACH RUN.
;
NETWORK;                               BEGINNING OF NETWORK DESCRIPTION.
;
;   ATTRIBUTE      CHARACTERISTIC      VALUE.
;
;        1         PWD ARRIVAL TIME    PARK TIME.
;
;        2         FIA CODE            TO BE DETERMINED.
;
;        3         PLANNING TYPE       1 IF SPECIAL BUY.
;                                      2 IF <= $5M.
;                                      3 IF URGENT > $5M <= $25M.
;                                      4 IF URGENT > $25M.
;                                      5 IF ROUTINE > $5M <= $25M.
;                                      6 IF ROUTINE > $25M.
;
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```
 58  ;        4          FNC 3 VALUE              0 IF <= $5M.
 59  ;                                            1 IF > $5M < $10M.
 60  ;                                            2 IF >= $10M <= $25M.
 61  ;                                            3 IF > $25M <= $100M.
 62  ;                                            4 IF > $100M <= $500M.
 63  ;                                            5 IF > $500M <= $1B.
 64  ;                                            6 IF > $1B <= $3B.
 65  ;                                            7 IF > $3B <= $10B.
 66  ;                                            8 IF > $10B.
 67  ;
 68  ;        5          IPC 2-62                 0 = N/A.
 69  ;                                            1 = YES.
 70  ;                                            2 = NO.
 71  ;
 72  ;        6          FORMAT C?                0 = N/A.
 73  ;                                            1 = YES.
 74  ;                                            2 = NO.
 75  ;
 76  ;        7          BUY STATION TYPE         1 = SMALL PURCHASE.
 77  ;                                            2 = PRICED SOA.
 78  ;                                            3 = UNPRICED SOA.
 79  ;                                            4 = RFP.
 80  ;                                            5 = IFB.
 81  ;
 82  ;        8          BUY BRANCH               1 = A.
 83  ;                                            2 = B.
 84  ;                                            3 = C.
 85  ;
 86  ;        9          ROUTING VARIABLE         FUNCTION OF ACTIVITY.
 87  ;
 88  ;       10          SERVICE TIME             FUNCTION OF ACTIVITY.
 89  ;
 90  ;       11          ROUTING VARIABLE         FUNCTION OF ACTIVITY.
 91  ;
 92  ;       12          ROUTING VARIABLE         FUNCTION OF ACTIVITY.
 93  ;
 94          CREATE,USERF(1),0.,1,29376,1;        TIME BETWEEN ARRIVALS = USERF(1)
 95  ;                                            AVERAGE MONTHLY INTERARRIVAL TIME
 96  ;                                            PER MONTH.
 97  ;                                            TIME OF 1ST ARRIVAL = 0..
 98  ;                                            ARRIVAL TIME STORED IN ATTRIBUTE
 99  ;                                            NUMBER 1.
100  ;                                            29376 ARRIVALS.
101  ;                                            1 EMANATING BRANCH.
102  ;
103          ACT,,.485,G3;                        TO SPECIAL BUY.
104          ACT,,.35,A2;                         TO <= $5M.
105          ACT,,.039,G20;                       TO URGENT SMALL PURCHASE > $5M.
106          ACT,,.029,G32;                       TO URGENT LARGE PURCHASE.
107          ACT,,.075,G60;                       TO ROUTINE SMALL PURCHASE.
108          ACT,,.022,G80;                       TO ROUTINE LARGE PURCHASE.
109  ;
110  A2      ASSIGN,ATRIB(3)=2,
111                 ATRIB(7)=1;                   <= $5M (ALSO <= $25M).
112          ACT,24,,BS;                          SEND <= $5M TO BUY STATION.
113  G3      GOON,1;                              SPECIAL BUY.
114          ACT,,,A3;
115  A3      ASSIGN,ATRIB(3)=1;
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116          ACT,,.235566E,A400;                    - ASSIGN  -
117          ACT,,.2975137,A401;                    - DOLLAR  -
118          ACT,,.3316477,A402;                    - VALUE   -
119          ACT,,.1049305,A403;                    - TO      -
120          ACT,,.0122208,A404;                    - THIS    -
121          ACT,,.0126422,A405;                    - SPECIAL -
122          ACT,,.0050569,A406;                    - BUY     -
123          ACT,,.0004214,A407;                    - PMC     -.
124  A410    ASSIGN,ATRIB(5)=1,
125                 ATRIB(10)=1.45;
126          ACT,,,01;
127  G4      GOON,1;                                BUY TYPE?
128          ACT,,.95,G5;                           FMS/PROVISIONING.
129          ACT,,.05,A4;                           GSA MANDATORY/FPI.
130  A4      ASSIGN,ATRIB(10)=1.07;
131          ACT,,,02;
132  A5      ASSIGN,ATRIB(10)=.16;
133          ACT,,,03;
134  G5      GOON,1;                                OBTAIN URGENCY STATEMENT, TECH
135          ACT,TRIAG(120.,240.,336.),,G6;         CERTS, FMS CASE DECISION, ETC.
136  G6      GOON,1;                                BATCHING DELAY.
137          ACT,TRIAG(0.,300.,720.),ATRIB(9).EQ.1,A6;
138          ACT,TRIAG(0.,300.,720.),ATRIB(9).EQ.4,A25;
139  A6      ASSIGN,ATRIB(5)=2,
140                 ATRIB(10)=12.34;
141          ACT,,,G2;
142  A7      ASSIGN,ATRIB(10)=1.8;
143          ACT,,,03;
144  G7      GOON,1;                                > $100K?
145          ACT,,ATRIB(4).GT.3,G8;                 YES.
146          ACT,,ATRIB(4).LT.4,G16;                NO.
147  G8      GOON,1;                                CMO.
148          ACT,TRIAG(144.,192.,240.),,G9;
149  G9      GOON,1;                                CMO APPROVES?
150          ACT,,ATRIB(5).EQ.3,G10;                IF PREVIOUSLY DISAPPROVED BY CMO,
151  ;                                              THEN CMO APPROVES THIS TIME.
152          ACT,,.98,A8;                           CMO DISAPPROVES.
153          ACT,,.02,G10;                          CMO APPROVES.
154  G10     GOON,1;                                > $1M?
155          ACT,,ATRIB(4).GT.5,G11;                YES.
156          ACT,,ATRIB(4).LT.6,G16;                NO.
157  G11     GOON,1;                                HCA.
158          ACT,TRIAG(96.,120.,168.),,G12;
159  G12     GOON,1;                                HCA APPROVES?
160          ACT,,ATRIB(11).EQ.1,G13;               IF PREVIOUSLY DISAPPROVED BY HCA,
161  ;                                              THEN HCA APPROVES THIS TIME.
162          ACT,,.98,A9;                           HCA DISAPPROVES.
163          ACT,,.02,G13;                          HCA APPROVES.
164  G13     GOON,1;                                > $10M?
165          ACT,,ATRIB(4).EQ.8,G14;                YES.
166          ACT,,ATRIB(4).LT.8,G16;                NO.
167  G14     GOON,1;                                ASARDA.
168          ACT,TRIAG(1080.,1680.,2160.),,G15;
169  G15     GOON,1;                                ASARCA APPROVES?
170          ACT,,ATRIB(12).EQ.1,G16;               IF PREVIOUSLY DISAPPROVED BY
171  ;                                              ASARDA, THEN ASARCA APPROVES
172  ;                                              THIS TIME.
173          ACT,,.98,A10;                          ASARCA DISAPPROVES.
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174          ACT,,.02,G16;                          ASARCA APPROVES.
175    A8    ASSIGN,ATRIB(9)=3;
176          ACT,,,A11;
177    A9    ASSIGN,ATRIB(11)=1;
178          ACT,,,A11;
179    A10   ASSIGN,ATRIB(12)=1;
180          ACT,,,A11;
181    A11   ASSIGN,ATRIB(10)=3.25;
182          ACT,,,Q2;
183    G16   GOON,1;                                IPD 2-6?
184          ACT,,.4,A12;                           NO.
185          ACT,,.6,A13;                           YES.
186    A12   ASSIGN,ATRIB(5)=2;
187          ACT,,,G17;
188    A13   ASSIGN,ATRIB(5)=1;
189          ACT,,,G19;
190    G17   GOON,1;                                SMALL BUSINESS REVIEW.
191          ACT,TRIAG(120.,216.,504.),,G18;
192    G18   GOON,1;                                SMALL BUSINESS AGREEMENT?
193          ACT,TRIAG(720.,720.,1080.),.3,G19;
194    ;                                            NO (+ PXA RESOLUTION DELAY).
195          ACT,,.7,G19;                           YES.
196    G19   GOON,1;                                BUY STATION PROBABILITIES:
197          ACT,,.763,A15;                         SMALL PURCHASE.
198          ACT,,.025,A16;                         PRICED BOA.
199          ACT,,.037,A17;                         UNPRICED BOA.
200          ACT,,.128,A18;                         RFP.
201          ACT,,.047,A19;                         IFB.
202    A15   ASSIGN,ATRIB(7)=1;                     - NON      -
203          ACT,24,,BS;                            - SEND     -
204    A16   ASSIGN,ATRIB(7)=2;                     - ALL      -
205          ACT,24,,BS;                            - THE      -
206    A17   ASSIGN,ATRIB(7)=3;                     - SPECIAL  -
207          ACT,24,,BS;                            - BUYS     -
208    A18   ASSIGN,ATRIB(7)=4;                     - TO       -
209          ACT,24,,BS;                            - THE      -
210    A19   ASSIGN,ATRIB(7)=5;                     - BUY      -
211          ACT,24,,BS;                            - STATION -.
212    G20   GOON,1;                                URGENT SMALL PURCHASE > $5K.
213          ACT,,,A20;
214    A20   ASSIGN,ATRIB(3)=3;
215          ACT,,.4201747,A400;                    - ASSIGN DOLLAR VALUE TO THIS -
216          ACT,,.5798253,A401;                    - URGENT SMALL PURCHASE PRO   -
217    A401  ASSIGN,ATRIB(9)=4,
218                ATRIB(10)=.5;
219          ACT,,,G1;
220    G21   GOON,1;                                OBTAIN URGENCY STATEMENT,
221          ACT,TRIAG(120.,240.,336.),,G22;        TECH CERTS, REVIEW MASTER
222    ;                                            FORMAT, ETC.
223    G22   GOON,1;                                FORMAT C?
224          ACT,,.1,A250;                          YES.
225          ACT,,.9,A21;                           NO.
226    A250  ASSIGN,ATRIB(6)=1;
227          ACT,,,G23;
228    A21   ASSIGN,ATRIB(6)=2,
229                ATRIB(9)=5,
230                ATRIB(10)=.86;
231          ACT,,,Q2;
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232  G23   GOON,1;                              PRIME CONTRACTOR?
233        ACT,,.05,A30;                        YES.
234        ACT,,.95,A22;                        NO.
235  A30   ASSIGN,ATRIB(9)=4;
236        ACT,,,G6;
237  A22   ASSIGN,ATRIB(9)=6,
238              ATRIB(10)=1.15;
239        ACT,,,02;
240  A23   ASSIGN,ATRIB(10)=.29;
241        ACT,,,03;
242  A24   ASSIGN,ATRIB(7)=1;
243        ACT,24,,BS;                          SEND URGENT SMALL PURCHASE
244  ;                                          SMALL PURCHASE TO BLY STATION.
245  A25   ASSIGN,ATRIB(10)=9.06;
246        ACT,,,02;
247  A26   ASSIGN,ATRIB(10)=1.52;
248        ACT,,,03;
249  A27   ASSIGN,ATRIB(7)=3;
250        ACT,24,,3S;                          SEND URGENT SMALL PURCHASE
251  ;                                          UNPRICED BOA TO BLY STATION.
252  G25   GOON,1;                              PRIOR HISTORY?
253        ACT,,.8,G26;                         YES.
254        ACT,,.2,A22;                         NO.
255  G26   GOON,1;                              CV REQUIRED?
256        ACT,,.089,G27;                       YES.
257        ACT,,.911,A28;                       NO.
258  A28   ASSIGN,ATRIB(9)=7,
259              ATRIB(10)=.5;
260        ACT,,,02;
261  G27   GOON,1;                              COORDINATE WITH PRODUCT
262  ;                                          ASSURANCE.
263        ACT,TRIAG(48.,96.,120.),,G28;
264  G28   GOON,1;                              CV WAIVER?
265        ACT,,.1,A28;                         YES.
266        ACT,,.9,A29;                         NO.
267  A29   ASSIGN,ATRIB(9)=8,
268              ATRIB(10)=.5;
269        ACT,,,G2;
270  G29   GOON,1;                              MEET RDD?
271        ACT,,.5,G30;                         YES: TO CRIS (PALT STOPS), AND
272  ;                                          THEN TO ROUTINE SMALL PURCHASE.
273        ACT,,.5,G30;                         NO.
274  G30   GOON,1;                              DETERMINE WHICH WAY TO BRANCH:
275        ACT,,ATRIB(5).EQ.7,A22;              TO URGENT SMALL PURCHASE QUEUE.
276        ACT,,ATRIB(9).EQ.8,G23;              TO PRIME CONTRACTOR DECISION.
277  G32   GOON,1;                              URGENT LARGE PURCHASE.
278        ACT,,,A32;
279  A32   ASSIGN,ATRIB(3)=4;
280        ACT,,.69876,A402;                    - ASSIGN DOLLAR VALUE -
281        ACT,,.2355945,A403;                  - TO THIS             -
282        ACT,,.0262582,A404;                  - URGENT              -
283        ACT,,.027717,A405;                   - LARGE               -
284        ACT,,.0116703,A406;                  - PURCHASE            -
285        ACT,,.0,A407;                        - PMC                 -.
286  A412  ASSIGN,ATRIB(9)=9,
287              ATRIB(10)=.5;
288        ACT,,,01;
289  A33   ASSIGN,ATRIB(10)=1.25;
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290          ACT,,,02;
291    G33   GOON,1;                              FORMAT C?
292          ACT,,.1,A251;                        YES.
293          ACT,,.9,A34;                         NO.
294    A251  ASSIGN,ATRIB(6)=1;
295          ACT,,,G39;
296    A34   ASSIGN,ATRIB(6)=2,
297                ATRIB(9)=10,
298                ATRIB(10)=.96;
299          ACT,,,02;
300    G34   GOON,1;                              MEET ROD?
301          ACT,,.5,G80;                         YES: T/F DMIS (FALT STOPS), AND
302    ;                                          THEN TO ROUTINE LARGE PURCHASE.
303          ACT,,.5,G35;                         NO.
304    G35   GOON,1;                              TECH CERTS, SOUS.
305          ACT,TRIAG(120.,240.,336.),,A35;
306    A35   ASSIGN,ATRIB(9)=11,
307                ATRIB(10)=9.29;
308          ACT,,,02;
309    G36   GOON,1;                              PRIOR HISTORY?
310          ACT,,.8,G37;                         YES.
311          ACT,,.2,G40;                         NO.
312    G37   GOON,1;                              F/A REQUIRED?
313          ACT,,.117,G38;                       YES.
314          ACT,,.883,A38;                       NO.
315    G38   GOON,1;                              F/A WAIVER?
316          ACT,,.1,A38;                         YES.
317          ACT,,.9,G41;                         NO.
318    G39   GOON,1;                              TECH CERTS, SOUS.
319          ACT,TRIAG(120.,240.,336.),,A36;
320    A36   ASSIGN,ATRIB(9)=12,
321                ATRIB(10)=9.29;
322          ACT,,,02;
323    G40   GOON,1;                              PRIME CONTRACTOR?
324          ACT,,.05,G41;                        YES.
325          ACT,,.95,A38;                        NO.
326    G41   GOON,1;                              BOA?
327          ACT,,.25,G42;                        YES.
328          ACT,,.75,A38;                        NO.
329    G42   GOON,1;                              BATCHING DELAY.
330          ACT,TRIAG(0.,300.,720.),,A37;
331    A37   ASSIGN,ATRIB(9)=14,
332                ATRIB(10)=.5;
333          ACT,,,02;
334    A38   ASSIGN,ATRIB(9)=13,
335                ATRIB(10)=4.73;
336          ACT,,,02;
337    A39   ASSIGN,ATRIB(10)=2.44;
338          ACT,,,03;
339    G43   GOON,1;                              > $100K?
340          ACT,,ATRIB(4).GT.3,G44;              YES.
341          ACT,,ATRIB(4).LT.4,A51;              NO.
342    G44   GOON,1;                              CMC.
343          ACT,TRIAG(144.,192.,240.),,G45;
344    G45   GOON,1;                              CMC APPROVES?
345          ACT,,ATRIB(9).EQ.15,G46;             IF PREVIOUSLY DISAPPROVED BY
346    ;                                          CMC, THEN CMC APPROVES THIS TIME.
347          ACT,,.98,A40;                        CMC DISAPPROVES.
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348          ACT,,.02,G46;                          CPO APPROVES.
349    A40   ASSIGN,ATRIB(9)=15;
350          ACT,,,A44;
351    G46   GOON,1;                                > $1M?
352          ACT,,ATRIB(4).LT.6,A41;                NO.
353          ACT,,ATRIB(4).GT.5,G47;                YES.
354    A41   ASSIGN,ATRIB(9)=16,
355                ATRIB(10)=.18;
356          ACT,,,03;
357    G47   GOON,1;                                HCA.
358          ACT,TRIAG(96.,120.,168.),,G48;
359    G48   GOON,1;                                HCA APPROVES?
360          ACT,,ATRIB(11).EQ.2,G49;               IF PREVIOUSLY DISAPPROVED BY HCA,
361   ;                                             THEN HCA APPROVES THIS TIME.
362          ACT,,.98,A42;                          HCA DISAPPROVES.
363          ACT,,.02,G49;                          HCA APPROVES.
364    A42   ASSIGN,ATRIB(11)=2;
365          ACT,,,A44;
366    G49   GOON,1;                                > $10M?
367          ACT,,ATRIB(4).LT.8,A41;                NO.
368          ACT,,ATRIB(4).EQ.8,G50;                YES.
369    G50   GOON,1;                                ASARCA.
370          ACT,TRIAG(1080.,1680.,2160.),,G51;
371    G51   GOON,1;                                ASARCA APPROVES?
372          ACT,,ATRIB(12).EQ.2,A41;               IF PREVIOUSLY DISAPPROVED BY
373   ;                                             ASARCA, THEN ASARCA APPROVES
374   ;                                             THIS TIME.
375          ACT,,.98,A43;                          ASARCA DISAPPROVES.
376          ACT,,.02,A41;                          ASARCA APPROVES.
377    A43   ASSIGN,ATRIB(12)=2;
378          ACT,,,A44;
379    A44   ASSIGN,ATRIB(10)=3.25;
380          ACT,,,02;
381    A45   ASSIGN,ATRIB(10)=1.82;
382          ACT,,,03;
383    G52   GOON,1;                                > $3M?
384          ACT,,ATRIB(4).GT.6,G53;                YES.
385          ACT,,ATRIB(4).LT.7,G54;                NO.
386    G53   GOON,1;                                HCA/AMC/SARDA.
387          ACT,TRIAG(1176.,1800.,2328.),,G56;
388    G54   GOON,1;                                HCA.
389          ACT,TRIAG(96.,120.,168.),,G55;
390    G55   GOON,1;                                HCA APPROVES?
391          ACT,,ATRIB(11).EQ.2.5.AND.
392               ATRIB(12).EQ.2.5,A47;             IF PREVIOLSLY DISAPPROVED BY HCA
393   ;                                             ONLY, THEN HCA APPROVES THIS TIME.
394          ACT,,.98,A46;                          HCA DISAPPROVES.
395          ACT,,.02,A47;                          HCA APPROVES.
396    G56   GOON,1;                                HCA/AMC/SARDA APPROVE?
397          ACT,,ATRIB(11).EQ.2.6.AND.
398               ATRIB(12).EQ.2.6,A47;             IF PREVIOUSLY DISAPPROVED BY
399   ;                                             HCA/AMC/SARDA, THEN HCA/AMC/
400   ;                                             SARDA APPROVE THIS TIME.
401          ACT,,.98,A48;                          HCA/AMC/SARDA DISAPPROVE.
402          ACT,,.02,A47;                          HCA/AMC/SARDA APPROVE.
403    A46   ASSIGN,ATRIB(11)=2.5,
404                ATRIB(12)=2.5;
405          ACT,,,A49;
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406   A47    ASSIGN,ATRIB(5)=18,
407                 ATRIB(10)=.18;
408          ACT,,,G3;
409   A48    ASSIGN,ATRIB(11)=2.6,
410                 ATRIB(12)=2.6;
411          ACT,,,A49;
412   A49    ASSIGN,ATRIB(5)=17,
413                 ATRIB(10)=3.25;
414          ACT,,,Q2;
415   A50    ASSIGN,ATRIB(7)=3;                    SEND URGENT LARGE PURCHASE
416          ACT,24,,BS;                           UNPRICED BOA TO BUY STATION.
417   ;
418   A51    ASSIGN,ATRIB(7)=4;
419          ACT,24,,BS;                           SEND URGENT LARGE PURCHASE
420   ;                                            RFP TO BUY STATION.
421   G60    GOON,1;                               ROUTINE SMALL PURCHASE.
422          ACT,,,A52;
423   A52    ASSIGN,ATRIB(3)=5;
424          ACT,,.5234858,A400;                   - ASSIGN DOLLAR VALUE TO THIS -
425          ACT,,.4765142,A401;                   - ROUTINE SMALL PURCHASE PND  -.
426   A413   ASSIGN,ATRIB(9)=19,
427                 ATRIB(10)=.5;
428          ACT,,,Q1;
429   A53    ASSIGN,ATRIB(10)=1.25;
430          ACT,,,Q2;
431   G61    GOON,1;                               FORMAT C?
432          ACT,,.9,A54;                          NO.
433          ACT,,.1,A252;                         YES.
434   A54    ASSIGN,ATRIB(6)=2,
435                 ATRIB(9)=20,
436                 ATRIB(10)=.88,
437                 ATRIB(11)=0;
438          ACT,,,Q2;
439   A252   ASSIGN,ATRIB(6)=1;
440          ACT,,,G65;
441   G62    GOON,1;                               1ST TIME B/C?
442          ACT,,.035,G63;                        YES.
443          ACT,,.965,G64;                        NO.
444   G63    GOON,1;                               COMPLEX?
445          ACT,,.1,G64;                          YES.
446          ACT,,.9,A55;                          NO.
447   G64    GOON,1;                               SBSA?
448          ACT,,.9,A55;                          YES.
449          ACT,,.1,A56;                          NO.
450   A55    ASSIGN,ATRIB(5)=21,
451                 ATRIB(10)=.38;
452          ACT,,,G3;
453   A56    ASSIGN,ATRIB(10)=.38;
454          ACT,,,Q3;
455   G65    GOON,1;                               VALID?
456          ACT,,ATRIB(11).EQ.3,A57;              IF ALREADY VALID AFTER 1 LOOP,
457   ;                                            THEN SKIP DOWN, ELSE NEXT TWO
458   ;                                            LINES.
459          ACT,,.15,A64;                         NOT VALID: TO/FROM THIS (FAULT
460   ;                                            STOPS).
461          ACT,,.85,A57;                         VALID.
462   A64    ASSIGN,ATRIB(11)=3;                   CONVERT TO VALID.
463          ACT,,,A53;
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464   A57    ASSIGN,ATRIB(9)=22,
465                 ATRIB(10)=.86;
466          ACT,,,Q2;
467   G66    GOON,1;                                  BOA EXIST?
468          ACT,,.75,A58;                            NO.
469          ACT,,.25,G68;                            YES.
470   A58    ASSIGN,ATRIB(9)=23,
471                 ATRIB(10)=1.15;
472          ACT,,,Q2;
473   A59    ASSIGN,ATRIB(10)=.29;
474          ACT,,,G3;
475   G67    GOON,1;                                  SBSA?
476          ACT,,.1,G72;                             NO.
477          ACT,,.9,A63;                             YES.
478   G68    GOON,1;                                  BATCHING DELAY.
479          ACT,TRIAG(0.,300.,720.),,A60;
480   A60    ASSIGN,ATRIB(9)=24,
481                 ATRIB(10)=9.06;
482          ACT,,,Q2;
483   A61    ASSIGN,ATRIB(10)=1.52;
484          ACT,,,G3;
485   G69    GOON,1;                                  SBF.
486          ACT,TRIAG(120.,216.,504.),,G70;
487   G70    GOON,1;                                  SB AGREEMENT?
488          ACT,,.3,G71;                             NO.
489          ACT,,.7,A62;                             YES.
490   G71    GOON,1;                                  PXA RESOLUTION.
491          ACT,TRIAG(720.,720.,1(80.),,A62;
492   A62    ASSIGN,ATRIB(7)=2;
493          ACT,24,,BS;                              SEND ROUTINE SMALL PURCHASE
494   ;                                               PRICED BOA TO BUY STATION.
495   G72    GOON,1;                                  SBF.
496          ACT,TRIAG(120.,216.,504.),,G73;
497   G73    GOON,1;                                  SB AGREEMENT?
498          ACT,,.3,G74;                             NO.
499          ACT,,.7,A63;                             YES.
500   G74    GOON,1;                                  PXA RESOLUTION.
501          ACT,TRIAG(720.,720.,1(80.),,A63;
502   A63    ASSIGN,ATRIB(7)=1;
503          ACT,24,,BS;                              SEND ROUTINE SMALL PURCHASE
504   ;                                               SMALL PURCHASE TO BUY STATION.
505   G80    GOON,1;                                  ROUTINE LARGE PURCHASE.
506          ACT,,,A65;
507   A65    ASSIGN,ATRIB(3)=6;
508          ACT,,.790523,A402;                       - ASSIGN DOLLAR VALUE -
509          ACT,,.171199,A403;                       - TO THIS             -
510          ACT,,.021067,A404;                       - ROUTINE             -
511          ACT,,.009724,A405;                       - LARGE               -
512          ACT,,.006483,A406;                       - PURCHASE            -
513          ACT,,.0,A407;                            - PWC                 -.
514   A414   ASSIGN,ATRIB(5)=25,
515                 ATRIB(10)=.5;
516          ACT,,,Q1;
517   A66    ASSIGN,ATRIB(10)=1.25;
518          ACT,,,Q2;
519   G81    GOON,1;                                  FORMAT C?
520          ACT,,.9,A67;                             NO.
521          ACT,,.1,A253;                            YES.
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522   A67    ASSIGN,ATRIB(6)=2,
523                 ATRIB(9)=26,
524                 ATRIB(10)=.96,
525                 ATRIB(11)=0;
526          ACT,,,02;
527   A253   ASSIGN,ATRIB(6)=1;
528          ACT,,,692;
529   G82    GOON,1;                                  1ST TIME E/O?
530          ACT,,.035,G84;                           YES.
531          ACT,,.965,A68;                           NO.
532   G84    GOON,1;                                  SBR.
533          ACT,TRIAG(120.,216.,564.),,G85;
534   G85    GOON,1;                                  SB P(A) RECOMMENDED?
535          ACT,,.25,A68;                            NO.
536          ACT,,.75,G86;                            YES.
537   A68    ASSIGN,ATRIB(9)=27,
538                 ATRIB(10)=5.23;
539          ACT,,,02;
540   A65    ASSIGN,ATRIB(10)=.76;
541          ACT,,,03;
542   G86    GOON,1;                                  SBR.
543          ACT,TRIAG(120.,216.,564.),,G87;
544   G87    GOON,1;                                  SB AGREEMENT?
545          ACT,,.3,G88;                             NO.
546          ACT,,.7,A70;                             YES.
547   G88    GOON,1;                                  PXA RESOLUTION.
548          ACT,TRIAG(720.,720.,1080.),,A70;
549   A70    ASSIGN,ATRIB(7)=5;
550          ACT,24,,85;                              SEND ROUTINE LARGE PURCHASE
551   ;                                               IFB TO BLY STATION.
552   G89    GOON,1;                                  WAIVER?
553          ACT,,.9,A71;                             NO.
554          ACT,,.1,G90;                             YES.
555   A71    ASSIGN,ATRIB(9)=28,
556                 ATRIB(10)=15.68;
557          ACT,,,02;
558   A72    ASSIGN,ATRIB(10)=2.29;
559          ACT,,,03;
560   G90    GOON,1;                                  NO APPEAL.
561          ACT,TRIAG(504.,672.,672.),,G91;
562   G91    GOON,1;                                  APPEAL DENIED?
563          ACT,,.99,A71;                            YES.
564          ACT,,.01,A66;                            NO.
565   G92    GOON,1;                                  VALID FORMAT?
566          ACT,,ATRIB(11).EQ.4,A74;                 IF ALREADY VALID, THEN SKIP
567   ;                                               DOWN, ELSE NEXT TWO LINES.
568          ACT,,.15,A73;                            NOT VALID: TO/FROM CPIS,
569   ;                                               (ALT STOFS).
570          ACT,,.85,A74;                            VALID.
571   A73    ASSIGN,ATRIB(9)=25,
572                 ATRIB(11)=4;                      CONVERT TO VALID.
573          ACT,,,A66;
574   A74    ASSIGN,ATRIB(9)=29,
575                 ATRIB(10)=.96;
576          ACT,,,02;
577   G93    GOON,1;                                  HAVE CERTS?
578          ACT,,ATRIB(11).EQ.5,A419;                IF ALREADY HAVE CERTS, THEN
579   ;                                               SKIP DOWN, ELSE NEXT TWO LINES.
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580          ACT,,.01,A419;                    HAVE CERTS.
581          ACT,,.99,A75;                     DO NOT HAVE CERTS.
582    A75   ASSIGN,ATRIB(11)=5;               OBTAIN CERTS: TO/FROM CPP,
583          ACT,,,G93;                        (PALT STOPS).
584    A419  ASSIGN,ATRIB(11)=0;
585          ACT,,,G94;
586    G94   GOON,1;                           ECA CANDIDATE?
587          ACT,,.75,A76;                     NO.
588          ACT,,.25,G98;                     YES.
589    A76   ASSIGN,ATRIB(5)=30,
590                ATRIB(10)=14.52;
591          ACT,,,G2;
592    A77   ASSIGN,ATRIB(10)=2.12;
593          ACT,,,G3;
594    G95   GOON,1;                           SBR.
595          ACT,TRIAG(120.,216.,504.),,G96;
596    G96   GOON,1;                           SB AGREEMENT?
597          ACT,,.3,G97;                      NO.
598          ACT,,.7,A78;                      YES.
599    G97   GOON,1;                           PXA RESOLUTION.
600          ACT,TRIAG(720.,720.,1080.),,A78;
601    A78   ASSIGN,ATRIB(7)=4;
602          ACT,24,,BS;                       SEND ROUTINE LARGE PURCHASE RFP
603    ;                                       TO BUY STATION.
604    G98   GOON,1;                           BATCHING DELAY.
605          ACT,TRIAG(0.,300.,720.),,A75;
606    A75   ASSIGN,ATRIB(5)=31,
607                ATRIB(10)=10.74;
608          ACT,,,G2;
609    A80   ASSIGN,ATRIB(10)=1.57;
610          ACT,,,G3;
611    G95   GOON,1;                           SBR.
612          ACT,TRIAG(120.,216.,504.),,G100;
613    G100  GOON,1;                           SB AGREEMENT?
614          ACT,,.3,G101;                     NO.
615          ACT,,.7,A81;                      YES.
616    G101  GOON,1;                           PXA RESOLUTION.
617          ACT,TRIAG(720.,720.,1080.),,A81;
618    A81   ASSIGN,ATRIB(7)=2;
619          ACT,24,,BS;                       SEND ROUTINE LARGE PURCHASE
620    ;                                       PRICED BOP TO BUY STATION.
621    ;
622    ;
623    BS    GOON,1;                           BUY STATION.
624    ;
625    ;
626          ACT,,ATRIB(7).EQ.1,G102;
627          ACT,,ATRIB(7).EQ.2,G125;
628          ACT,,ATRIB(7).EQ.3,G153;
629          ACT,,ATRIB(7).EQ.4,G180;
630          ACT,,ATRIB(7).EQ.5,G205;
631    G102  GOON,1;                           SMALL PURCHASE AT BUY STATION.
632          ACT,,.33,A300;                    - DETERMINE WHICH     -
633          ACT,,.33,A301;                    - BUY STATION BRANCH  -
634          ACT,,.34,A302;                    - TO ACCESS           -.
635    A300  ASSIGN,ATRIB(8)=1;                BRANCH A.
636          ACT,,,A85;
637    A301  ASSIGN,ATRIB(8)=2;                BRANCH B.
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638          ACT,,,A85;
639    A3C2  ASSIGN,ATRIB(8)=3;                    BRANCH C.
640          ACT,,,A85;
641    A85   ASSIGN,ATRIB(9)=35,
642                ATRIB(10)=.52,
643                ATRIB(11)=0.;
644          ACT,,ATRIB(8).EQ.1,87;
645          ACT,,ATRIB(8).EQ.2,89;
646          ACT,,ATRIB(8).EQ.3,G11;
647    G103  GOON,1;                              < $10K?
648          ACT,,ATRIB(4).LT.2,A86;               YES.
649          ACT,,ATRIB(4).GT.1,A87;               NO.
650    A86   ASSIGN,ATRIB(10)=.571;
651          ACT,,ATRIB(8).EQ.1,86;
652          ACT,,ATRIB(8).EQ.2,88;
653          ACT,,ATRIB(8).EQ.3,81C;
654    A87   ASSIGN,ATRIB(9)=36,
655                ATRIB(10)=.2,
656                ATRIB(11)=552.;               RECORD SYNOPSIS HOLDING PERIOD.
657          ACT,,ATRIB(8).EQ.1,86;
658          ACT,,ATRIB(8).EQ.2,88;
659          ACT,,ATRIB(8).EQ.3,81C;
660    A88   ASSIGN,ATRIB(12)=TNOW;                COMMENCE SYNOPSIS TIME CONSTRAINT.
661          ACT,,,G104;
662    G104  GOON,1;                              GV SAMPLES?
663          ACT,,.05,G105;                        YES.
664          ACT,,.95,G106;                        NO.
665    G105  GOON,1;                              ABSTRACT.
666          ACT,TRIAG(144.,168.,240.),,G106;
667    G106  GOON,1;                              CLASSIFIED DRAWINGS?
668          ACT,,.08,G107;                        YES.
669          ACT,,.92,G108;                        NO.
670    G107  GOON,1;                              FACILITIES CLEARANCE.
671          ACT,TRIAG(192.,336.,336.),,G108;
672    G108  GOON,1;                              FORM OF SOLICITATION?
673          ACT,,.98,A89;                         WRITTEN.
674          ACT,,.02,A90;                         VERBAL.
675    A89   ASSIGN,ATRIB(9)=37,
676                ATRIB(10)=3.654;
677          ACT,,ATRIB(8).EQ.1,8E;
678          ACT,,ATRIB(8).EQ.2,88;
679          ACT,,ATRIB(8).EQ.3,81C;
680    A90   ASSIGN,ATRIB(9)=38,
681                ATRIB(10)=.654;
682          ACT,,ATRIB(8).EQ.1,86;
683          ACT,,ATRIB(8).EQ.2,8E;
684          ACT,,ATRIB(8).EQ.3,81C;
685    G110  GOON,1;                              DETERMINE WHICH WAY TO BRANCH:
686          ACT,,ATRIB(11).EQ.0,G112;             IF NOT SYNOPSIZED, THEN HOLDING
687    ;                                           PERIOD = C, SO SKIP COMA.
688          ACT,,ATRIB(11).GT.0,A91;              IF SYNOPSIZED, THEN HOLDING
689    ;                                           PERIOD > C; SO RECORD SYNOPSIS
690    ;                                           TIME CONSTRAINT.
691    A91   ASSIGN,ATRIB(12)=TNOW-ATRIB(12);     RECORD SYNOPSIS TIME CONSTRAINT.
692          ACT,,,G111;
693    G111  GOON,1;                              COMPARE SYNOPSIS TIME CONSTRAINT
694    ;                                           WITH SYNOPSIS HOLDING PERIOD TO
695    ;                                           SEE IF BALT ADJUSTMENT NECES-
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696   ;                                                    SARY.
697         ACT,,ATRIB(11).GT.ATRIB(12),A92;               ADJUSTMENT NEEDED AS SYNOPSIS
698   ;                                                    HOLDING PERIOD EXCEEDS SYNOPSIS
699   ;                                                    TIME CONSTRAINT; THIS PALT WILL
700   ;                                                    HAVE TO BE INCREASED.
701         ACT,,ATRIB(11).LE.ATRIB(12),G112;              ADJUSTMENT NOT NEEDED AS
702   ;                                                    SYNOPSIS HOLDING PERIOD DOES NOT
703   ;                                                    EXCEED SYNOPSIS TIME CONSTRAINT,
704   ;                                                    SO SKIP DOWN.
705   ;
706   A92   ASSIGN,ATRIB(1)=ATRIB(1)+ATRIB(12)-ATRIB(11);
707   ;
708   ;     THE ABOVE ADJUSTS PALT ACCORDINGLY:
709   ;
710   ;     PALT = TNOW - ATRIB(1).
711   ;     ADJUSTED PALT > ORIGINAL PALT IN THIS CASE.
712   ;     ATRIB(12) - ATRIB(11) < 0.
713   ;     ADJUSTED ATRIB(1) = ORIGINAL ATRIB(1) + THIS NEGATIVE NUMBER
714   ;     SO, ADJUSTED PALT = TNOW - ADJUSTED ATRIB(1)
715   ;                       = TNOW - ORIGINAL ATRIB(1) - THIS NEGATIVE NUMBER
716   ;                       = TNOW - ORIGINAL ATRIB(1) + POSITIVE NUMBER
717   ;                       = ORIGINAL PALT + POSITIVE NUMBER
718   ;                       > ORIGINAL PALT.
719   ;
720   ;     THUS, A92 IS CORRECT.
721         ACT,,,G112;
722   G112  GOON,1;                                        RFQ TO/FROM CONTRACTOR.
723         ACT,TRIAG(336.,504.,720.),,G113;
724   G113  GOON,1;                                        TECHNICAL QUESTIONS?
725         ACT,,.1,G114;                                  YES.
726         ACT,,.9,A93;                                   NO.
727   G114  GOON,1;                                        ENGINEERING REVIEW.
728         ACT,TRIAG(144.,168.,240.),,A93;
729   A93   ASSIGN,ATRIB(9)=39,
730               ATRIB(10)=1.30;
731         ACT,,ATRIB(8).EQ.1,G6;
732         ACT,,ATRIB(8).EQ.2,G8;
733         ACT,,ATRIB(8).EQ.3,G10;
734   A94   ASSIGN,ATRIB(9)=40,
735               ATRIB(10)=1.05;
736         ACT,,ATRIB(8).EQ.1,G6;
737         ACT,,ATRIB(8).EQ.2,G8;
738         ACT,,ATRIB(8).EQ.3,G10;
739   G115  GOON,1;                                        CONTRACTOR RESPONSIBLE?
740         ACT,,.1,A95;                                   NO.
741         ACT,,.9,A96;                                   YES.
742   A95   ASSIGN,ATRIB(9)=41,
743               ATRIB(10)=25.3;
744         ACT,,ATRIB(8).EQ.1,G6;
745         ACT,,ATRIB(8).EQ.2,G8;
746         ACT,,ATRIB(8).EQ.3,G10;
747   G116  GOON,1;                                        PRE-AWARD SURVEY.
748         ACT,TRIAG(504.,720.,1008.),,G117;
749   G117  GOON,1;                                        POSITIVE?
750         ACT,,.2,A96;                                   NO.
751         ACT,,.8,A98;                                   YES.
752   A96   ASSIGN,ATRIB(10)=2.5;
753         ACT,,ATRIB(8).EQ.1,G7;
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754          ACT,,ATRIB(8).EQ.2,09;
755          ACT,,ATRIB(8).EQ.3,011;
756     G118 GOON,1;                                SMALL BUSINESS?
757          ACT,,.01,G119;                         NO.
758          ACT,,.99,A97;                          YES.
759     A97  ASSIGN,ATRIB(9)=42,
760                 ATRIB(10)=5.37;
761          ACT,,ATRIB(8).EQ.1,06;
762          ACT,,ATRIB(8).EQ.2,08;
763          ACT,,ATRIB(8).EQ.3,010;
764     G119 GOON,1;                                AWARD ANYWAY?
765          ACT,,.05,A94;                          NO.
766          ACT,,.95,G125;                         YES.
767     G120 GOON,1;                                SBA.
768          ACT,TRIAG(240.,240.,360.),,G121;
769     G121 GOON,1;                                COC ISSUED?
770          ACT,,.075,A94;                         NO.
771          ACT,,.925,G122;                        YES.
772     G122 GOON,1;                                NC APPEAL?
773          ACT,,.95,G123;                         YES.
774          ACT,,.05,G125;                         NO.
775     G123 GOON,1;                                SBA.
776          ACT,TRIAG(504.,672.,672.),,G124;
777     G124 GOON,1;                                APPEAL DENIED?
778          ACT,,.0,A94;                           NO.
779          ACT,,1.,G125;                          YES.
780     G125 GOON,1;                                CEL OR DELINQUENT PRESENT
781     ;                                           PRODUCER?
782          ACT,,.5,G126;                          YES.
783          ACT,,.5,A98;                           NO.
784     G126 GOON,1;                                HCA FOR APPROVAL TO AWARD TO
785     ;                                           DELINQUENT CONTRACTOR.
786          ACT,TRIAG(96.,120.,168.),,A98;
787     A98  ASSIGN,ATRIB(9)=43,
788                 ATRIB(10)=1.;
789          ACT,,ATRIB(8).EQ.1,06;
790          ACT,,ATRIB(8).EQ.2,08;
791          ACT,,ATRIB(8).EQ.3,010;
792     G127 GOON,1;                                >= $10K?
793          ACT,,ATRIB(4).GT.1,G128;               YES.
794          ACT,,ATRIB(4).LT.2,G129;               NO.
795     G128 GOON,1;                                CERTS.
796          ACT,TRIAG(240.,240.,336.),,G129;
797     G129 GOON,1;                                PRICE REASONABLE?
798          ACT,,.1,G130;                          NO.
799          ACT,,.9,A100;                          YES.
800     G130 GOON,1;                                ENGINEERING REVIEW.
801          ACT,TRIAG(144.,168.,240.),,G131;
802     G131 GOON,1;                                25% DIFFERENTIAL?
803          ACT,,.1,A99;                           YES.
804          ACT,,.9,A100;                          NO.
805     A99  ASSIGN,ATRIB(9)=44,
806                 ATRIB(10)=1.;
807          ACT,,ATRIB(8).EQ.1,06;
808          ACT,,ATRIB(8).EQ.2,08;
809          ACT,,ATRIB(8).EQ.3,010;
810     A100 ASSIGN,ATRIB(9)=45,
811                 ATRIB(10)=1.984;
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812          ACT,,ATRIB(8).EQ.1,06;
813          ACT,,ATRIB(8).EQ.2,08;
814          ACT,,ATRIB(8).EQ.3,010;
815    A101  ASSIGN,ATRIB(10)=1.;
816          ACT,,ATRIB(8).EQ.1,07;
817          ACT,,ATRIB(8).EQ.2,09;
818          ACT,,ATRIB(8).EQ.3,011;
819    G135  GOON,1;                          PRICED BOX AT BUY STATION.
820          ACT,,.33,A321;                   - DETERMINE WHICH     -
821          ACT,,.34,A322;                   - BUY STATION BRANCH  -
822          ACT,,.33,A323;                   - TO ACCESS           -.
823    A321  ASSIGN,ATRIB(8)=1;               BRANCH A.
824          ACT,,,A105;
825    A322  ASSIGN,ATRIB(8)=2;               BRANCH B.
826          ACT,,,A105;
827    A323  ASSIGN,ATRIB(8)=3;               BRANCH C.
828          ACT,,,A105;
829    A105  ASSIGN,ATRIB(9)=66,
830                ATRIB(10)=.52;
831          ACT,,ATRIB(8).EQ.1,07;
832          ACT,,ATRIB(8).EQ.2,09;
833          ACT,,ATRIB(8).EQ.3,011;
834    A106  ASSIGN,ATRIB(10)=.2,
835                ATRIB(11)=552.;            RECORD SYNOPSIS HOLDING PERIOD.
836          ACT,,ATRIB(8).EQ.1,06;
837          ACT,,ATRIB(8).EQ.2,08;
838          ACT,,ATRIB(8).EQ.3,010;
839    A107  ASSIGN,ATRIB(12)=TNOW;           COMMENCE SYNOPSIS TIME CONSTRAINT.
840          ACT,,,A108;
841    A108  ASSIGN,ATRIB(9)=47,
842                ATRIB(10)=2.71;
843          ACT,,ATRIB(8).EQ.1,06;
844          ACT,,ATRIB(8).EQ.2,08;
845          ACT,,ATRIB(8).EQ.3,010;
846    G136  GOON,1;                          LR.
847          ACT,TRIAG(180.,336.,540.),,A109;
848    A109  ASSIGN,ATRIB(9)=48,
849                ATRIB(10)=.825;
850          ACT,,ATRIB(8).EQ.1,06;
851          ACT,,ATRIB(8).EQ.2,08;
852          ACT,,ATRIB(8).EQ.3,010;
853    A110  ASSIGN,ATRIB(12)=TNOW-ATRIB(12);  RECORD SYNOPSIS TIME CONSTRAINT.
854          ACT,,,G137;
855    G137  GOON,1;                          COMPARE SYNOPSIS TIME CONSTRAINT
856    ;                                      WITH SYNOPSIS HOLDING PERIOD TO
857    ;                                      SEE IF PALT ADJUSTMENT NEEDED.
858          ACT,,ATRIB(11).GT.ATRIB(12),A111; ADJUSTMENT REQUIRED.
859          ACT,,ATRIB(11).LE.ATRIB(12),G140; NO ADJUSTMENT REQUIRED.
860    A111  ASSIGN,ATRIB(1)=ATRIB(1)+(ATRIB(12)-ATRIB(11));
861    ;                                      ADJUST PALT.
862          ACT,,,G140;
863    G140  GOON,1;                          TO/FROM CONTRACTOR.
864          ACT,TRIAG(720.,1080.,1200.),,A115;
865    A115  ASSIGN,ATRIB(9)=49,
866                ATRIB(10)=.301;
867          ACT,,ATRIB(8).EQ.1,06;
868          ACT,,ATRIB(8).EQ.2,08;
869          ACT,,ATRIB(8).EQ.3,010;
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870  G141  GOON,1;                                  REQUEST PRICING?
871        ACT,,ATRIB(4).GT.3,A116;                 YES (IF > $100K).
872        ACT,,ATRIB(4).LT.4,A117;                 NO (IF <= $100K).
873  A116  ASSIGN,ATRIB(10)=45.348;
874        ACT,,,015;
875  A117  ASSIGN,ATRIB(9)=50,
876              ATRIB(10)=.664;
877        ACT,,ATRIB(8).EQ.1,06;
878        ACT,,ATRIB(8).EQ.2,08;
879        ACT,,ATRIB(8).EQ.3,010;
880  A118  ASSIGN,ATRIB(9)=51,
881              ATRIB(10)=2.;
882        ACT,,ATRIB(8).EQ.1,06;
883        ACT,,ATRIB(8).EQ.2,08;
884        ACT,,ATRIB(8).EQ.3,010;
885  G142  GOON,1;                                  CLEARANCE, NEGOTIATION,
886  ;                                              COORDINATE WITH PMO.
887        ACT,TRIAG(144.,168.,240.),,G143;
888  G143  GOON,1;                                  > $100K?
889        ACT,,ATRIB(4).GT.3,G144;                 YES.
890        ACT,,ATRIB(4).LT.4,A119;                 NO.
891  A119  ASSIGN,ATRIB(10)=.627;
892        ACT,,ATRIB(8).EQ.1,07;
893        ACT,,ATRIB(8).EQ.2,09;
894        ACT,,ATRIB(8).EQ.3,011;
895  G144  GOON,1;                                  DCR.
896        ACT,TRIAG(72.,120.,120.),,A121;
897  A121  ASSIGN,ATRIB(9)=52,
898              ATRIB(10)=1.992;
899        ACT,,ATRIB(8).EQ.1,06;
900        ACT,,ATRIB(8).EQ.2,08;
901        ACT,,ATRIB(8).EQ.3,010;
902  G145  GOON,1;                                  PRICING CERTS, DEPARTMENT CERTS.
903        ACT,TRIAG(240.,240.,336.),,A122;
904  A122  ASSIGN,ATRIB(9)=53,
905              ATRIB(10)=6.726;
906        ACT,,ATRIB(8).EQ.1,06;
907        ACT,,ATRIB(8).EQ.2,08;
908        ACT,,ATRIB(8).EQ.3,010;
909  G146  GOON,1;                                  OBTAIN FUNDING?
910        ACT,,.95,G147;                           YES.
911        ACT,,.05,G148;                           NO.
912  G147  GOON,1;                                  PMO AMENDMENT.
913        ACT,TRIAG(48.,120.,120.),,G148;
914  G148  GOON,1;                                  CHECK DOLLAR VALUE:
915        ACT,,ATRIB(4).GT.6,G149;                 > $3M.
916        ACT,,ATRIB(4).GT.4.AND.
917             ATRIB(4).LT.7,G150;                 > $500K <= $3M.
918        ACT,,ATRIB(4).EQ.4,G151;                 > $100K <= $500K.
919        ACT,,ATRIB(4).LT.4,G152;                 <= $100K.
920  G149  GOON,1;                                  LR/RS/COMG NOT.
921        ACT,TRIAG(312.,528.,696.),,G152;
922  G150  GOON,1;                                  LR/RS.
923        ACT,TRIAG(240.,456.,624.),,G152;
924  G151  GOON,1;                                  LR.
925        ACT,TRIAG(168.,336.,504.),,G152;
926  G152  GOON,1;                                  TO/FROM CONTRACTOR.
927        ACT,TRIAG(336.,504.,504.);
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920          ACT,,ATRIB(4).EQ.2,A123;          IF > $10M,
925          ACT,,ATRIB(4).GT.4.AND.
930               ATRIB(4).LT.8,A124;          IF > $500K <= $10M,
931          ACT,,ATRIB(4).LT.5,A125;          IF <= $500K,
932  A123    ASSIGN,ATRIB(10)=.75;
933          ACT,,,05;
934  A124    ASSIGN,ATRIB(10)=.75;
935          ACT,,ATRIB(2).EQ.1,G12;
936          ACT,,ATRIB(2).EQ.2,G13;
937          ACT,,ATRIB(2).EQ.3,G14;
938  A125    ASSIGN,ATRIB(10)=.75;
939          ACT,,ATRIB(2).EQ.1,G7;
940          ACT,,ATRIB(2).EQ.2,09;
941          ACT,,ATRIB(2).EQ.3,011;
942  G153    GOON,1;                           UNPRICED EOA AT BUY STATION.
943          ACT,,.34,A341;                    - DETERMINE WHICH     -
944          ACT,,.33,A342;                    - BUY STATION BRANCH  -
945          ACT,,.33,,343;                    - TO ACCESS           -.
946  A341    ASSIGN,ATRIB(2)=1;                BRANCH A.
947          ACT,,,A126;
948  A342    ASSIGN,ATRIB(2)=2;                BRANCH B.
945          ACT,,,A126;
950  A343    ASSIGN,ATRIB(2)=3;                BRANCH C.
951          ACT,,,A126;
952  A126    ASSIGN,ATRIB(9)=54,
953                 ATRIB(10)=.52;
954          ACT,,ATRIB(2).EQ.1,07;
955          ACT,,ATRIB(2).EQ.2,09;
956          ACT,,ATRIB(2).EQ.3,011;
957  G154    GOON,1;                           BUDGET ESTIMATE, ATE PRICE FROM
958  ;                                         CONTRACTOR.
959          ACT,TRIAG(336.,504.,564.),,A127;
960  A127    ASSIGN,ATRIB(9)=53,
961                 ATRIB(10)=2.85;
962          ACT,,ATRIB(2).EQ.1,06;
963          ACT,,ATRIB(2).EQ.2,08;
964          ACT,,ATRIB(2).EQ.3,010;
965  G160    GOON,1;                           RFP AT BUY STATION.
966          ACT,,.33,A361;                    - DETERMINE WHICH     -
967          ACT,,.33,A362;                    - BUY STATION BRANCH  -
968          ACT,,.34,A363;                    - TO ACCESS           -.
969  A361    ASSIGN,ATRIB(2)=1;                BRANCH A.
970          ACT,,,A129;
971  A362    ASSIGN,ATRIB(2)=2;                BRANCH B.
972          ACT,,,A129;
973  A363    ASSIGN,ATRIB(2),3;                BRANCH C.
974          ACT,,,A129;
975  A129    ASSIGN,ATRIB(9)=55,
976                 ATRIB(10)=.52;
977          ACT,,ATRIB(2).EQ.1,07;
978          ACT,,ATRIB(2).EQ.2,09;
979          ACT,,ATRIB(2).EQ.3,011;
980  A130    ASSIGN,ATRIB(10)=.2,
981                 ATRIB(11)=552.;           RECORD SYNOPSIS MELDING PERIOD.
982          ACT,,ATRIB(2).EQ.1,06;
983          ACT,,ATRIB(2).EQ.2,08;
984          ACT,,ATRIB(2).EQ.3,010;
985  A131    ASSIGN,ATRIB(12)=TNOW;            COMMENCE SYNOPSIS TIME CONSTRAIN
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986           ACT,,,A132;
987    A132   ASSIGN,ATRIB(5)=56,
988                  ATRIB(10)=20.141;
989           ACT,,ATRIB(8).EQ.1,Q6;
990           ACT,,ATRIB(8).EQ.2,Q8;
991           ACT,,ATRIB(8).EQ.3,Q10;
992    G161   GOON,1;                                  > $100K?
993           ACT,,ATRIB(4).GT.3,G162;                 YES.
994           ACT,,ATRIB(4).LT.4,G163;                 NO.
995    G162   GOON,1;                                  LR.
996           ACT,TRIAG(168.,336.,504.),,G163;
997    G163   GOON,1;                                  TO/FROM REPRODUCTION.
998           ACT,TRIAG(168.,240.,240.),,A133;
999    A133   ASSIGN,ATRIB(12)=TNOW-ATRIB(12);         RECORD SYNOPSIS TIME
1000   ;                                               CONSTRAINT.
1001          ACT,,,G164;
1002   G164   GOON,1;                                  COMPARE SYNOPSIS TIME
1003   ;                                               CONSTRAINT WITH SYNOPSIS
1004   ;                                               HOLDING PERIOD TO SEE IF
1005   ;                                               PALT NEEDS ADJUSTMENT.
1006          ACT,,ATRIB(11).GT.ATRIB(12),A134;        ADJUSTMENT REQUIRED.
1007          ACT,,ATRIB(11).LE.ATRIB(12),G167;        NO ADJUSTMENT REQUIRED.
1008   A134   ASSIGN,ATRIB(1)=ATRIB(1)+ATRIB(12)-ATRIB(11);
1009   ;                                               ADJUST PALT.
1010          ACT,,,G167;
1011   G167   GOON,1;                                  RFP TO/FROM CONTRACTOR.
1012          ACT,TRIAG(720.,1008.,1200.),,A135;
1013   A135   ASSIGN,ATRIB(9)=57,
1014                ATRIB(10)=4.285;
1015          ACT,,ATRIB(8).EQ.1,Q6;
1016          ACT,,ATRIB(8).EQ.2,Q8;
1017          ACT,,ATRIB(8).EQ.3,Q10;
1018   G168   GOON,1;                                  TECH CLARIFICATIONS REQUIRED
1019          ACT,,.1,G169;                            YES.
1020          ACT,,.9,G170;                            NO.
1021   G169   GOON,1;                                  COORDINATE WITH ENGINEERING.
1022          ACT,TRIAG(144.,168.,240.),,G170;
1023   G170   GOON,1;                                  > $100K?
1024          ACT,,ATRIB(4).GT.3,A136;                 YES.
1025          ACT,,ATRIB(4).LT.4,A137;                 NO.
1026   A136   ASSIGN,ATRIB(10)=53.77;
1027          ACT,,,Q10;
1028   A137   ASSIGN,ATRIB(5)=58,
1029                ATRIB(10)=1.;
1030          ACT,,ATRIB(8).EQ.1,Q6;
1031          ACT,,ATRIB(8).EQ.2,Q8;
1032          ACT,,ATRIB(8).EQ.3,Q10;
1033   A138   ASSIGN,ATRIB(9)=59,
1034                ATRIB(10)=2.;
1035          ACT,,ATRIB(8).EQ.1,Q6;
1036          ACT,,ATRIB(8).EQ.2,Q8;
1037          ACT,,ATRIB(8).EQ.3,Q10;
1038   G171   GOON,1;                                  CLEARANCE, NEGOTIATION,
1039   ;                                               COORDINATE WITH PPO.
1040          ACT,TRIAG(144.,168.,240.),,G172;
1041   G172   GOON,1;                                  > $100K?
1042          ACT,,ATRIB(4).GT.3,G173;                 YES.
1043          ACT,,ATRIB(4).LT.4,A139;                 NO.
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1044   G173   GOON,1;                                  ECR.
1045          ACT,TRIAG(72.,120.,120.),,A140;
1046   A139   ASSIGN,ATRIB(10)=.627;
1047          ACT,,ATRIB(8).EQ.1,G7;
1048          ACT,,ATRIB(8).EQ.2,G9;
1049          ACT,,ATRIB(8).EQ.3,G11;
1050   A140   ASSIGN,ATRIB(9)=60,
1051                 ATRIB(10)=12.73;
1052          ACT,,ATRIB(8).EQ.1,G6;
1053          ACT,,ATRIB(8).EQ.2,G8;
1054          ACT,,ATRIB(8).EQ.3,G10;
1055   G174   GOON,1;                                  > $100K?
1056          ACT,,ATRIB(4).GT.3,G175;                 YES.
1057          ACT,,ATRIB(4).LT.4,A141;                 NO.
1058   G175   GOON,1;                                  CERTS FROM CONTRACTOR.
1059          ACT,TRIAG(240.,240.,336.),,A141;
1060   A141   ASSIGN,ATRIB(9)=61,
1061                 ATRIB(10)=1.;
1062          ACT,,ATRIB(8).EQ.1,G6;
1063          ACT,,ATRIB(8).EQ.2,G8;
1064          ACT,,ATRIB(8).EQ.3,G10;
1065   G176   GOON,1;                                  CONTRACTOR RESPONSIBLE?
1066          ACT,,.1,A142;                            NO.
1067          ACT,,.9,A145;                            YES.
1068   A142   ASSIGN,ATRIB(9)=62,
1069                 ATRIB(10)=25.3;
1070          ACT,,ATRIB(8).EQ.1,G6;
1071          ACT,,ATRIB(8).EQ.2,G8;
1072          ACT,,ATRIB(8).EQ.3,G10;
1073   G177   GOON,1;                                  DELAY.
1074          ACT,TRIAG(504.,720.,1008.),,G178;
1075   G178   GOON,1;                                  POSITIVE?
1076          ACT,,.2,A143;                            NO.
1077          ACT,,.8,A145;                            YES.
1078   A143   ASSIGN,ATRIB(10)=2.5;
1079          ACT,,ATRIB(8).EQ.1,G7;
1080          ACT,,ATRIB(8).EQ.2,G9;
1081          ACT,,ATRIB(8).EQ.3,G11;
1082   G179   GOON,1;                                  SMALL BUSINESS?
1083          ACT,,.99,A144;                           YES.
1084          ACT,,.01,G180;                           NO.
1085   A144   ASSIGN,ATRIB(9)=63,
1086                 ATRIB(10)=5.37;
1087          ACT,,ATRIB(8).EQ.1,G6;
1088          ACT,,ATRIB(8).EQ.2,G8;
1089          ACT,,ATRIB(8).EQ.3,G10;
1090   G180   GOON,1;                                  AWARD ANYWAY?
1091          ACT,,.05,A141;                           NO.
1092          ACT,,.95,G186;                           YES.
1093   G181   GOON,1;                                  SBA.
1094          ACT,TRIAG(240.,240.,360.),,G182;
1095   G182   GOON,1;                                  COC ISSUED?
1096          ACT,,.075,A141;                          NO.
1097          ACT,,.925,G183;                          YES.
1098   G183   GOON,1;                                  PC APPEAL?
1099          ACT,,.95,G184;                           YES.
1100          ACT,,.05,G186;                           NO.
1101   G184   GOON,1;                                  SBA.
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1102          ACT,TRIAG(504.,672.,672.),,G185;
1103   G185   GOON,1;                                  APPEAL DENIED?
1104          ACT,,.0,A141;                            NO.
1105          ACT,,1.,G186;                            YES.
1106   G186   GOON,1;                                  CEL CR DELINQUENT PRESENT
1107   ;                                               PRODUCER?
1108          ACT,,.5,G187;                            YES.
1109          ACT,,.5,A145;                            NO.
1110   G187   GOON,1;                                  HCA FOR APPROVAL TO AWARD TO
1111          ACT,TRIAG(56.,120.,168.),,A145;          DELINQUENT CONTRACTOR.
1112   A145   ASSIGN,ATRIB(9)=64,
1113                 ATRIB(10)=10.613;
1114          ACT,,ATRIB(8).EQ.1,G6;
1115          ACT,,ATRIB(8).EQ.2,Q8;
1116          ACT,,ATRIB(8).EQ.3,Q1C;
1117   G188   GOON,1;                                  OBTAIN FUNDING?
1118          ACT,,.95,G189;                           YES.
1119          ACT,,.05,A146;                           NO.
1120   G189   GOON,1;                                  PMC AMENDMENT.
1121          ACT,TRIAG(48.,120.,120.),,A146;
1122   A146   ASSIGN,ATRIB(10)=0.,
1123                 ATRIB(11)=0.,
1124                 ATRIB(12)=0.;
1125          ACT,,,G190;
1126   G190   GOON,1;                                  $ VALUE:
1127          ACT,,ATRIB(4).GT.5,A147;                 > $500K.
1128          ACT,,ATRIB(4).EQ.4,A149;                 > $100K <= $500K.
1129          ACT,,ATRIB(4).LT.4,G202;                 < = $100K.
1130   A147   ASSIGN,ATRIB(10)=TRIAG(504.,720.,720.);
1131   ;                                               RECORD SBR REVIEW SLP-
1132          ACT,,,A149;                              CONTRACT PLAN SERVICE TIME.
1133   A149   ASSIGN,ATRIB(11)=TRIAG(240.,456.,624.);
1134   ;                                               RECORD LEGAL/AWARD BOARD
1135          ACT,,,G192;                              REVIEW SERVICE TIME.
1136   G192   GOON,1;                                  DETERMINE IF > $1P:
1137          ACT,,ATRIB(4).GT.5,A150;                 YES.
1138          ACT,,ATRIB(4).LT.6,G199;                 NO.
1139   A150   ASSIGN,ATRIB(12)=TRIAG(504.,720.,1008.);
1140          ACT,,,G193;                              RECORD EEO REVIEW SERVICE TIME.
1141   G193   GOON,1;                                  COMPARE THE THREE SERVICE TIMES
1142   ;                                               FOR SBR REVIEW SUBCONTRACT PLAN,
1143   ;                                               LEGAL/AWARD BOARD REVIEW, AND
1144   ;                                               EEO REVIEW.
1145          ACT,,ATRIB(10).GE.ATRIB(11).AND.
1146                ATRIB(10).GE.ATRIB(12),G194;       ATRIB(10) = MAXIMUM TIME.
1147          ACT,,ATRIB(11).GE.ATRIB(10).AND.
1148                ATRIB(11).GE.ATRIB(12),G195;       ATRIB(11) = MAXIMUM TIME.
1149          ACT,,ATRIB(12).GE.ATRIB(10).AND.
1150                ATRIB(12).GE.ATRIB(11),G196;       ATRIB(12) = MAXIMUM TIME.
1151   G194   GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1152          ACT,ATRIB(10),,G197;
1153   G195   GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1154          ACT,ATRIB(11),,G197;
1155   G196   GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1156          ACT,ATRIB(12),,G197;
1157   G197   GOON,1;                                  DETERMINE IF > $1P:
1158          ACT,,ATRIB(4).GT.6,G150;                 YES.
1159          ACT,,ATRIB(4).LT.7,G202;                 NO.
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1160  G158  GOON,1;                                  CONGRESSIONAL NOTIFICATION.
1161        ACT,72.,,G202;
1162  G159  GOON,1;                                  COMPARE THE TWO SERVICE TIMES
1163  ;                                              FOR SBR REVIEW SUCCONTRACT PLAN
1164  ;                                              AND LEGAL/AWARD BOARD REVIEW.
1165        ACT,,ATRIB(10).LE.ATRIB(11),G200;
1166        ACT,,ATRIB(10).GT.ATRIB(11),G201;
1167  G200  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1168        ACT,ATRIB(11),,G202;
1169  G201  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1170        ACT,ATRIB(10),,G202;
1171  G202  GOON,1;                                  CONTRACTOR SIGN.
1172        ACT,TRIAG(336.,504.,546.);
1173        ACT,,ATRIB(4).EQ.0,A151;                 > $10M.
1174        ACT,,ATRIB(4).GT.4.AND.
1175             ATRIB(4).LT.0,A152;                 > $500K <= $10M.
1176        ACT,,ATRIB(4).LT.5,A153;                 <= $500K.
1177  A151  ASSIGN,ATRIB(10)=9.033;
1178        ACT,,,05;
1179  A152  ASSIGN,ATRIB(10)=9.033;
1180        ACT,,ATRIB(0).EQ.1,G12;
1181        ACT,,ATRIB(0).EQ.2,013;
1182        ACT,,ATRIB(0).EQ.3,014;
1183  A153  ASSIGN,ATRIB(10)=9.033;
1184        ACT,,ATRIB(0).EQ.1,07;
1185        ACT,,ATRIB(0).EQ.2,09;
1186        ACT,,ATRIB(0).EQ.3,011;
1187  G205  GOON,1;                                  IFB AT BUY STATION.
1188        ACT,,.33,A301;                           - DETERMINE WHICH     -
1189        ACT,,.33,A302;                           - BUY STATION BRANCH  -
1190        ACT,,.34,A303;                           - TO ACCESS           -.
1191  A301  ASSIGN,ATRIB(0)=1;                       BRANCH A.
1192        ACT,,,A160;
1193  A302  ASSIGN,ATRIB(0)=2;                       BRANCH B.
1194        ACT,,,A160;
1195  A303  ASSIGN,ATRIB(0)=3;                       BRANCH C.
1196        ACT,,,A160;
1197  A160  ASSIGN,ATRIB(9)=65.,
1198              ATRIB(10)=.52;
1199        ACT,,ATRIB(0).EQ.1,G7;
1200        ACT,,ATRIB(0).EQ.2,05;
1201        ACT,,ATRIB(0).EQ.3,011;
1202  A161  ASSIGN,ATRIB(10)=.2,
1203              ATRIB(11)=552.;                    RECORD SYNOPSIS RECEIVING PERIOD.
1204        ACT,,ATRIB(0).EQ.1,06;
1205        ACT,,ATRIB(0).EQ.2,08;
1206        ACT,,ATRIB(0).EQ.3,016;
1207  A16.  ASSIGN,ATRIB(12)=TWOW;                   COMMENCE SYNOPSIS TIME
1208        ACT,,,A163;                              CONSTRAINT.
1209  A163  ASSIGN,ATRIB(9)=66.,
1210              ATRIB(10)=15.66;
1211        ACT,,ATRIB(0).EQ.1,08;
1212        ACT,,ATRIB(0).EQ.2,08;
1213        ACT,,ATRIB(0).EQ.3,016;
1214  G206  GOON,1;                                  CLASSIFIED COMMENTS NEEDED
1215  ;                                              TO BID?
1216        ACT,,.00,G207;                           YES.
1217        ACT,,.92,A164;                           NO.
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G207  GOON,1;                                      FACILITIES CLEARANCE.
      ACT,TRIAG(152.,336.,336.),,A164;
A164  ASSIGN,ATRIB(9)=67,
             ATRIB(10)=5.004;
      ACT,,ATRIB(8).EQ.1,G6;
      ACT,,ATRIB(8).EQ.2,G8;
      ACT,,ATRIB(8).EQ.3,G10;
G208  GOON,1;                                      > $100K?
      ACT,,ATRIB(4).GT.3,G209;                     YES.
      ACT,,ATRIB(4).LT.4,G211;                     NO.
G209  GOON,1;                                      LR.
      ACT,TRIAG(168.,336.,504.),,G210;
G210  GOON,1;                                      LEGAL RECOMMENDATIONS?
      ACT,,.75,A165;                               YES.
      ACT,,.25,G211;                               NO.
A165  ASSIGN,ATRIB(9)=68,
             ATRIB(10)=5.004;
      ACT,,ATRIB(8).EQ.1,G6;
      ACT,,ATRIB(8).EQ.2,G8;
      ACT,,ATRIB(8).EQ.3,G10;
G211  GOON,1;                                      FIELD PRINTING.
      ACT,TRIAG(168.,240.,240.),,A166;
A166  ASSIGN,ATRIB(12)=TNOW-ATRIB(12);             RECORD SYNOPSIS TIME
      ;                                            CONSTRAINT.
      ACT,,,G[illegible];
G[illegible] GOON,1;                               COMPARE SYNOPSIS TIME
      ;                                            CONSTRAINT WITH SYNOPSIS
      ;                                            HOLDING PERIOD.
      ACT,,ATRIB(11).GT.ATRIB(12),A167;            ADJUSTMENT REQUIRED.
      ACT,,ATRIB(11).LE.ATRIB(12),G215;            NO ADJUSTMENT REQUIRED.
A167  ASSIGN,ATRIB(1)=ATRIB(1)+ATRIB(12)-ATRIB(11);
      ;                                            ADJUST FALT.
      ACT,,,G215;
G215  GOON,1;                                      TO/FROM CONTRACTOR.
      ACT,TRIAG(72.,1008.,1209.),,A172;
A172  ASSIGN,ATRIB(9)=69,
             ATRIB(10)=3.003;
      ACT,,ATRIB(8).EQ.1,G6;
      ACT,,ATRIB(8).EQ.2,G8;
      ACT,,ATRIB(8).EQ.3,G10;
A1[illegible] ASSIGN,ATRIB(9)=70,
             ATRIB(10)=[illegible];
      ACT,,ATRIB(8).EQ.1,G6;
      ACT,,ATRIB(8).EQ.2,G8;
      ACT,,ATRIB(8).EQ.3,G10;
G[illegible] GOON,1;                               SHOULD PRE-AWARD SURVEY
      ;                                            BE REQUIRED?
      ACT,,[illegible],A17[illegible];             YES.
      ACT,,[illegible],A17[illegible];             NO.
A17[illegible] ASSIGN,ATRIB(9)=71,
             ATRIB(10)=[illegible];
      ACT,,ATRIB(8).EQ.1,G6;
      ACT,,ATRIB(8).EQ.2,G8;
      ACT,,ATRIB(8).EQ.3,G10;
G[illegible] GOON,1;                               PRE-AWARD SURVEY.
      ACT,TRIAG([illegible]04.,[illegible]0.,1008.),,[illegible];
A17[illegible] ASSIGN,ATRIB(13)=0.,
             ATRIB(11)=0.,
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1276                ATRIB(12)=0.;
1277          ACT,,,G221;
1278   G221   GOON,1;                                  CONTRACTOR NEEDS TO
1279   ;                                               CONFIRM PRICE?
1280          ACT,,1.,A175;                            YES.
1281          ACT,,.0,G225;                            NO.
1282   A175   ASSIGN,ATRIB(10)=TRIAG(240.,240.,336.);
1283   ;                                               RECORD CONFIRMATION TIME.
1284          ACT,,,G223;
1285   G223   GOON,1;                                  PRICE CONFIRMED?
1286          ACT,,.967,G225;                          YES.
1287          ACT,,.033,A177;                          NO.
1288   A177   ASSIGN,ATRIB(10)=ATRIB(10)+TRIAG(720.,1440.,2160.);
1289   ;                                               RECORD ADDITIONAL CONFIR-
1290   ;                                               MATION TIME.
1291          ACT,,,G225;
1292   G225   GOON,1;                                  RESOLVED?
1293          ACT,,.95,G229;                           YES.
1294          ACT,,.05,A173;                           NO.
1295   G229   GOON,1;                                  REQUEST F/A WAIVER?
1296          ACT,,.8,A179;                            YES.
1297          ACT,,.2,G234;                            NO.
1298   A179   ASSIGN,ATRIB(11)=TRIAG(168.,240.,240.);
1299   ;                                               RECORD WAIVER TIME.
1300          ACT,,,G234;
1301   G234   GOON,1;                                  CLASSIFIED DRAWINGS NEEDED
1302   ;                                               TO MANUFACTURE?
1303          ACT,,.08,A180;                           YES.
1304          ACT,,.92,G236;                           NO.
1305   A180   ASSIGN,ATRIB(12)=TRIAG(192.,336.,336.);
1306   ;                                               RECORD FACILITIES CLEARANCE
1307   ;                                               TIME.
1308          ACT,,,G236;
1309   G236   GOON,1;                                  DETERMINE MAXIMUM TIME.
1310          ACT,,ATRIB(10).GE.ATRIB(11).AND.
1311               ATRIB(10).GE.ATRIB(12),G237;        ATRIB(10) = MAXIMUM TIME.
1312          ACT,,ATRIB(11).GE.ATRIB(10).AND.
1313               ATRIB(11).GE.ATRIB(12),A181;        ATRIB(11) = MAXIMUM TIME.
1314          ACT,,ATRIB(12).GE.ATRIB(10).AND.
1315               ATRIB(12).GE.ATRIB(11),A182;        ATRIB(12) = MAXIMUM TIME.
1316   A181   ASSIGN,ATRIB(10)=ATRIB(11);              SET MAXIMUM = TO ATRIB(10).
1317          ACT,,,G237;
1318   A182   ASSIGN,ATRIB(10)=ATRIB(12);              SET MAXIMUM = TO ATRIB(10).
1319          ACT,,,G237;
1320   G237   GOON,1;                                  DELAY FOR MAXIMUM TIME.
1321          ACT,ATRIB(10),,G239;
1322   G239   GOON,1;                                  CONTRACTOR RESPONSIBLE?
1323          ACT,,.1,A200;                            NO.
1324          ACT,,.9,A205;                            YES.
1325   A200   ASSIGN,ATRIB(5)=72,
1326                ATRIB(10)=2.5;
1327          ACT,,ATRIB(8).EQ.1,G7;
1328          ACT,,ATRIB(8).EQ.2,G9;
1329          ACT,,ATRIB(8).EQ.3,G11;
1330   G240   GOON,1;                                  SMALL BUSINESS?
1331          ACT,,.01,G241;                           NO.
1332          ACT,,.99,A201;                           YES.
1333   G241   GOON,1;                                  AWARD ANYWAY?
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1334          ACT,,.05,A173;                          NO.
1335          ACT,,.95,G247;                          YES.
1336    A261  ASSIGN,ATRIB(9)=73,
1337                ATRIB(10)=5.37;
1338          ACT,,ATRIB(8).EG.1,Q6;
1339          ACT,,ATRIB(8).EG.2,Q8;
1340          ACT,,ATRIB(8).EQ.3,Q10;
1341    G242  GOON,1;                                 SBA.
1342          ACT,TRIAG(240.,240.,360.),,G243;
1343    G243  GOON,1;                                 COC WILL BE ISSUED?
1344          ACT,,.075,A173;                         NO.
1345          ACT,,.925,G244;                         YES.
1346    G244  GOON,1;                                 PC APPEAL?
1347          ACT,,.95,G245;                          YES.
1348          ACT,,.05,G247;                          NO.
1349    G245  GOON,1;                                 SBA.
1350          ACT,TRIAG(504.,672.,672.),,G246;
1351    G246  GOON,1;                                 UPHOLD COC?
1352          ACT,,.0,A173;                           NO.
1353          ACT,,1.,G247;                           YES.
1354    G247  GOON,1;                                 CEL OR DELINQUENT PRESENT
1355    ;                                             PRODUCER?
1356          ACT,,.5,G248;                           YES.
1357          ACT,,.5,A205;                           NO.
1358    G248  GOON,1;                                 OBTAIN HCA APPROVAL.
1359          ACT,TRIAG(96.,120.,168.),,A205;
1360    A205  ASSIGN,ATRIB(9)=74,
1361                ATRIB(10)=18.762;
1362          ACT,,ATRIB(8).EG.1,Q6;
1363          ACT,,ATRIB(8).EQ.2,Q8;
1364          ACT,,ATRIB(8).EG.3,Q10;
1365    G251  GOON,1;                                 OBTAIN FUNDING?
1366          ACT,,.95,G252;                          YES.
1367          ACT,,.05,A206;                          NO.
1368    G252  GOON,1;                                 PWD AMENDMENT.
1369          ACT,TRIAG(48.,120.,120.),,A206;
1370    A206  ASSIGN,ATRIB(10)=0.,
1371                ATRIB(11)=0.,
1372                ATRIB(12)=0.;
1373          ACT,,,G253;
1374    G253  GOON,1;                                 $ VALUE:
1375          ACT,,ATRIB(4).GT.3,A207;                > $100K.
1376          ACT,,ATRIB(4).LT.4,G265;                <= $100K.
1377    A207  ASSIGN,ATRIB(10)=TRIAG(168.,336.,504.);
1378    ;                                             RECORD LR TIME.
1379          ACT,,,G254;
1380          GOON,1;                                 DETERMINE IF > $500K:
1381          ACT,,ATRIB(4).GT.4,A208;                YES.
1382          ACT,ATRIB(10),ATRIB(4).LT.5,G265;       NO (+ LR DELAY TIME).
1383    A208  ASSIGN,ATRIB(11)=TRIAG(504.,720.,720.);
1384    ;                                             RECORD SB REVIEW OF SUBCONT
1385    ;                                             PLAN TIME.
1386          ACT,,,G255;
1387          GOON,1;                                 DETERMINE IF > $1M:
1388          ACT,,ATRIB(4).GT.5,A209;                YES.
1389          ACT,,ATRIB(4).LT.6,G475;                NO.
1390    A209  ASSIGN,ATRIB(12)=TRIAG(504.,720.,1008.);
1391          ACT,,,G256;                             RECORD EEO REVIEW TIME.
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1392  G475  GOON,1;                                  COMPARE THE 2 SERVICE TIMES FOR
1393  ;                                              LR AND SB REVIEW OF SUBCONT PLAN.
1394        ACT,,ATRIB(10).GE.ATRIB(11),G476;        ATRIB(10) = MAXIMUM TIME.
1395        ACT,,ATRIB(10).LT.ATRIB(11),G477;        ATRIB(11) = MAXIMUM TIME.
1396  G476  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1397        ACT,ATRIB(10),,G265;
1398  G477  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1399        ACT,ATRIB(11),,G265;
1400  G256  GOON,1;                                  COMPARE THE 3 SERVICE TIMES FOR
1401  ;                                              LR, SB REVIEW OF SUBCONT PLAN,
1402  ;                                              AND EEO REVIEW.
1403        ACT,,ATRIB(10).GE.ATRIB(11).AND.
1404             ATRIB(10).GE.ATRIB(12),G257;        ATRIB(10) = MAXIMUM TIME.
1405        ACT,,ATRIB(11).GE.ATRIB(10).AND.
1406             ATRIB(11).GE.ATRIB(12),G258;        ATRIB(11) = MAXIMUM TIME.
1407        ACT,,ATRIB(12).GE.ATRIB(10).AND.
1408             ATRIB(12).GE.ATRIB(11),G259;        ATRIB(12) = MAXIMUM TIME.
1409  G257  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1410        ACT,ATRIB(10),,G260;
1411  G258  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1412        ACT,ATRIB(11),,G260;
1413  G259  GOON,1;                                  DELAY FOR APPROPRIATE TIME.
1414        ACT,ATRIB(12),,G260;
1415  G260  GOON,1;                                  DETERMINE IF > $3M:
1416        ACT,,ATRIB(4).GT.6,G261;                 YES.
1417        ACT,,ATRIB(4).LT.7,G265;                 NO.
1418  G261  GOON,1;                                  CONGRESSIONAL NOTIFICATION.
1419        ACT,72.,,,G265;
1420  G265  GOON,1;                                  PREPARE TO BRANCH FOR NO
1421  ;                                              SIGNATURE.
1422        ACT,,ATRIB(4).LT.5,A217;                 <= $500K.
1423        ACT,,ATRIB(4).GT.4.AND.
1424             ATRIB(4).LT.8,A218;                 > $500K <= $10M.
1425        ACT,,ATRIB(4).EQ.8,A219;                 > $10M.
1426  A217  ASSIGN,ATRIB(10)=6.63;
1427        ACT,,ATRIB(8).EQ.1,Q7;
1428        ACT,,ATRIB(8).EQ.2,Q9;
1429        ACT,,ATRIB(8).EQ.3,Q11;
1430  A218  ASSIGN,ATRIB(10)=6.63;
1431        ACT,,ATRIB(8).EQ.1,Q12;
1432        ACT,,ATRIB(8).EQ.2,Q13;
1433        ACT,,ATRIB(8).EQ.3,Q14;
1434  A219  ASSIGN,ATRIB(10)=6.63;
1435        ACT,,,Q5;
1436  A400  ASSIGN,ATRIB(4)=1;                       > $5K < $10K.
1437        ACT,,,G450;
1438  A401  ASSIGN,ATRIB(4)=2;                       >= $10K <= $25K.
1439        ACT,,,G450;
1440  A402  ASSIGN,ATRIB(4)=3;                       > $25K <= $100K.
1441        ACT,,,G450;
1442  A403  ASSIGN,ATRIB(4)=4;                       > $100K <= $500K.
1443        ACT,,,G450;
1444  A404  ASSIGN,ATRIB(4)=5;                       > $500K <= $1M.
1445        ACT,,,G450;
1446  A405  ASSIGN,ATRIB(4)=6;                       > $1M <= $3M.
1447        ACT,,,G450;
1448  A406  ASSIGN,ATRIB(4)=7;                       > $3M <= $10M.
1449        ACT,,,G450;
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1450   A407   ASSIGN,ATRIB(4)=8;                    > $10M.
1451          ACT,,,G450;
1452   G450   GOON,1;                               BRANCH BACK TO APPROPRIATE
1453   ;                                            PLANNING TYPE CATEGORY.
1454          ACT,,ATRIB(3).EQ.1,A410;
1455          ACT,,ATRIB(3).EQ.2,A411;
1456          ACT,,ATRIB(3).EQ.4,A412;
1457          ACT,,ATRIB(3).EQ.5,A413;
1458          ACT,,ATRIB(3).EQ.6,A414;
1459   ;
1460   ;      USERF(2) = AUGMENTED SERVER PROCESSING TIME TO ACCOUNT FOR A
1461   ;      DAILY WORK SCHEDULE OF 0900 - 1630, WITH LUNCH FROM 1200 - 1230,
1462   ;      SEVEN DAYS A WEEK.
1463   ;
1464   Q1     QUEUE(1);                             IXA: ASSIGN PLANNING SPECIALIST.
1465          ACT(2)/1,USERF(2),,M1;
1466   M1     GOON,1;
1467          ACT,,ATRIB(5).EQ.1,G4;
1468          ACT,,ATRIB(5).EQ.4,G21;
1469          ACT,,ATRIB(5).EQ.9,A33;
1470          ACT,,ATRIB(5).EQ.19,A53;
1471          ACT,,ATRIB(5).EQ.25,A66;
1472   Q2     QUEUE(2);
1473          ACT(17)/2,USERF(2),,M2;
1474   M2     GOON,1;
1475          ACT,,ATRIB(5).EQ.1,A5;                REVIEW 1055, MASTER FORMAT.
1476          ACT,,ATRIB(5).EQ.2.AND.
1477               ATRIB(11).EQ.0.AND.
1478               ATRIB(12).EQ.0,A7;               DA1877, J&A, REVIEW 1055, MASTER
1479   ;                                            FORMAT, PREPARE SYNOPSIS/WAIVER.
1480          ACT,,ATRIB(5).EQ.3.OR.
1481               ATRIB(11).EQ.1.OR.
1482               ATRIB(12).EQ.1,A7;               FIX J&A.
1483          ACT,,ATRIB(5).EQ.4,A26;               PROCESS BATCH.
1484          ACT,,ATRIB(5).EQ.5,G25;               COMPLTE PLT.
1485          ACT,,ATRIB(5).EQ.6,A23;               URGENT SMALL PURCHASE (SYNOPSIS/
1486   ;                                            WAIVER IF APPLICABLE).
1487          ACT,,ATRIB(5).EQ.7.OR.
1488               ATRIB(5).EQ.8,G25;               EVALUATE ABILITY TO MEET RDD.
1489          ACT,,ATRIB(5).EQ.9,G33;               REVIEW 1055, MASTER FORMAT.
1490          ACT,,ATRIB(5).EQ.10,G34;              COMPLTE PLT.
1491          ACT,,ATRIB(5).EQ.11,G36;              J&A.
1492          ACT,,ATRIB(5).EQ.12,G40;              J&A.
1493          ACT,,ATRIB(5).EQ.13.AND.
1494               ATRIB(11).EQ.0.AND.
1495               ATRIB(12).EQ.0,A39;              RFP PROCESSING, PREPARE SYNOPSIS,
1496   ;                                            1877, SECURITY CLEARANCES.
1497          ACT,,ATRIB(5).EQ.14,A45;              PROCESS BATCH.
1498          ACT,,ATRIB(5).EQ.15.OR.
1499               ATRIB(11).EQ.2.OR.
1500               ATRIB(12).EQ.2,A39;              FIX J&A.
1501          ACT,,ATRIB(5).EQ.17,A45;              FIX J&A/UFO.
1502          ACT,,ATRIB(5).EQ.19,G61;              REVIEW 1055, MASTER FORMAT.
1503          ACT,,ATRIB(5).EQ.20,G62;              PROCUREMENT HIST, FUNDS
1504   ;                                            ADJUST, ETC.
1505          ACT,,ATRIB(5).EQ.22,G66;              COMPLTE PLT.
1506          ACT,,ATRIB(5).EQ.23,A59;              PURCHASE ORDER.
1507          ACT,,ATRIB(5).EQ.24,A61;              PA WRITES FORMS, PROCESS
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1508    ;                                                   BATCH, ETC.
1509            ACT,,ATRIB(9).EQ.25,GE1                     REVIEW 1055, MASTER FORMAT.
1510            ACT,,ATRIB(9).EQ.26,GE2;                    PROC MIST, FUNDS ADJUST.
1511            ACT,,ATRIB(9).EQ.27,AE9;                    PREP SYNOP, SEC CLEAR (IF
1512    ;                                                   APP), 1077*S, IFB.
1513            ACT,,ATRIB(9).EQ.28,A12;                    PREP SYNOP, SEC CLEAR (IF
1514    ;                                                   APP), 1077*S.
1515            ACT,,ATRIB(9).EQ.29,GS3;                    PROC MIST, FUNDS ADJUST.
1516            ACT,,ATRIB(9).EQ.30,A17;                    PREP SYNOP, SEC CLEAR (IF
1517    ;                                                   APP), 1077*S, RFP, NEG, J&A.
1518            ACT,,ATRIB(9).EQ.31,AE0;                    J&A, PREPARE SYNOPSIS.
1519    Q3      QUEUE(3);
1520            ACT(3)/3,USERF(2),,M3;
1521    M3      GOON,1;
1522            ACT,,ATRIB(9).EQ.1,A15;                     KO/HLR.
1523            ACT,,ATRIB(9).EQ.2.OR.
1524                 ATRIB(9).EQ.3.OR.
1525                 ATRIB(11).EQ.1.OR.
1526                 ATRIB(12).EQ.1,E7;                     KO/HLR.
1527            ACT,,ATRIB(9).EQ.4,A27;                     KO/HLR.
1528            ACT,,ATRIB(9).EQ.6,A24;                     KO/HLR.
1529            ACT,,ATRIB(9).EQ.13.OR.
1530                 ATRIB(9).EQ.15.OR.
1531                 ATRIB(11).EQ.2.OR.
1532                 ATRIB(12).EQ.2,E43;                    KO/HLR.
1533            ACT,,ATRIB(9).EQ.14.OR.
1534                 ATRIB(9).EQ.17,GS2;                    KO/HLR.
1535            ACT,,ATRIB(9).EQ.16,AS1;                    KO OF PLANNING SPECIALIST.
1536            ACT,,ATRIB(9).EQ.18,AS0;                    KO/HLR.
1537            ACT,,ATRIB(9).EQ.20,G72;                    KO/HLR APPROVAL.
1538            ACT,,ATRIB(9).EQ.21,AE3;                    KO REVIEW/SIGN.
1539            ACT,,ATRIB(9).EQ.23,GE7;                    KO REVIEW/SIGN.
1540            ACT,,ATRIB(9).EQ.24,GE9;                    KO REVIEW/SIGN.
1541            ACT,,ATRIB(9).EQ.27,GE6;                    KO/HLR.
1542            ACT,,ATRIB(9).EQ.28,A78;                    KO/HLR.
1543            ACT,,ATRIB(9).EQ.30,GS5;                    KO/HLR.
1544            ACT,,ATRIB(9).EQ.31,GS9;                    KO/HLR.
1545    ;
1546    ;   -- ------- QUEUE(4) DELETED FROM ANALYSIS ----------
1547    ;
1548    Q5      QUEUE(5);
1549            ACT(1)/5,USERF(2),,CONT;                    KO SIGN.
1550    Q6      QUEUE(6);                                   (AT BUY STATION BRANCH A).
1551            ACT(28)/6,USERF(2),,M6;
1552    Q7      QUEUE(7);                                   (AT BUY STATION BRANCH A).
1553            ACT(4)/7,USERF(2),,M7;
1554    Q8      QUEUE(8);                                   (AT BUY STATION BRANCH B).
1555            ACT(36)/8,USERF(2),,M6;
1556    Q9      QUEUE(9);                                   (AT BUY STATION BRANCH B).
1557            ACT(4)/9,USERF(2),,M7;
1558    Q10     QUEUE(10);                                  (AT BUY STATION BRANCH C).
1559            ACT(34)/10,USERF(2),,M6;
1560    Q11     QUEUE(11);                                  (AT BUY STATION BRANCH C).
1561            ACT(4)/11,USERF(2),,M7;
1562    Q12     QUEUE(12);                                  (AT BUY STATION BRANCH A).
1563            ACT(1)/12,USERF(2),,CONT;
1564    Q13     QUEUE(13);                                  (AT BUY STATION BRANCH B).
1565            ACT(1)/13,USERF(2),,CONT;
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1566   016    QUEUE(14);                          (AT BUY STATION BRANCH C).
1567          ACT(1)/14,USERF(2),,CONT;
1568   H6     GOON,1;
1569          ACT,,ATRIB(9).EQ.35,G104;           COMPILE SOURCE LIST.
1570          ACT,,ATRIB(9).EQ.36,A100;           SYNOPSIZE.
1571          ACT,,ATRIB(9).EQ.37,G110;           PACCS, RFQ.
1572          ACT,,ATRIB(9).EQ.38,G110;           ASSEMBLE RFQ, ISSUE SOLCITATION.
1573          ACT,,ATRIB(9).EQ.39,A154;           PRICE ANALYSIS, PRE-NEG PFR.
1574   ;                                          NEGOTIATE.
1575          ACT,,ATRIB(9).EQ.40,G115;           SELECT PROBABLE CONTRACTOR.
1576          ACT,,ATRIB(9).EQ.41,G116;           PRE-AWARD SURVEY.
1577          ACT,,ATRIB(9).EQ.42,G120;           REQUEST COC FROM SBA.
1578          ACT,,ATRIB(9).EQ.43,G127;           CONTRACT.
1579          ACT,,ATRIB(9).EQ.44,A100;           RECONCILIATION.
1580          ACT,,ATRIB(9).EQ.45,A101;           CERTS/PURCHASE ORDERS.
1581          ACT,,ATRIB(9).EQ.46,A107;           ISSUE SYNOPSIS.
1582          ACT,,ATRIB(9).EQ.47,G136;           DRAFT RFP.
1583          ACT,,ATRIB(9).EQ.48,A110;           REQUESTING RFP FROM PACCS.
1584          ACT,,ATRIB(9).EQ.49,G141;           REVIEW PROPOSAL.
1585          ACT,,ATRIB(9).EQ.50,A118;           NS PRICES.
1586          ACT,,ATRIB(9).EQ.51,G142;           RECONCILE OBJECTIVE TO
1587   ;                                          DCAA AUDIT.
1588          ACT,,ATRIB(9).EQ.52,G145;           NEGOTIATE.
1589          ACT,,ATRIB(9).EQ.53,G146;           PREPARE ORDER/DD350 (IF PRICED
1590   ;                                          BOA); PREPARE TASK ORDER, ETC.
1591   ;                                          (IF UNPRICED BOA).
1592          ACT,,ATRIB(9).EQ.55,A131;           ISSUE SYNOPSIS.
1593          ACT,,ATRIB(9).EQ.56,G161;           PREPARE RFP.
1594          ACT,,ATRIB(9).EQ.57,G168;           EVALUATE PROPOSAL.
1595          ACT,,ATRIB(9).EQ.58,A138;           NS PRICES.
1596          ACT,,ATRIB(9).EQ.59,G171;           RECONCILE OBJECTIVE TO
1597   ;                                          DCAA AUDIT.
1598          ACT,,ATRIB(9).EQ.60,G174;           NEGOTIATE.
1599          ACT,,ATRIB(9).EQ.61,G176;           SELECT PROBABLE CONTRACTOR.
1600          ACT,,ATRIB(9).EQ.62,G177;           PRE-AWARD SURVEY.
1601          ACT,,ATRIB(9).EQ.63,G181;           REQUEST COC FROM SBA.
1602          ACT,,ATRIB(9).EQ.64,G188;           CONTRACT, DD350.
1603          ACT,,ATRIB(9).EQ.65,A162;           ISSUE SYNOPSIS.
1604          ACT,,ATRIB(9).EQ.66,G206;           PREPARE SOLICITATION.
1605          ACT,,ATRIB(9).EQ.67,G208;           IFB PRINTED.
1606          ACT,,ATRIB(9).EQ.68,G211;           IFB REPRINTED.
1607          ACT,,ATRIB(9).EQ.69,A173;           BIDS OPENED/EVALUATED.
1608          ACT,,ATRIB(9).EQ.70,G216;           SELECT PROBABLE CONTRACTOR.
1609          ACT,,ATRIB(9).EQ.71,G217;           REQUEST PRE-AWARD SURVEY.
1610          ACT,,ATRIB(9).EQ.73,G242;           REQUEST COC FROM REG SBO.
1611          ACT,,ATRIB(9).EQ.74,G251;           PREPARE CONTRACT, DD350,
1612   ;                                          ORDER STABLE BASE, ETC.
1613   H7     GOON,1;
1614          ACT,,ATRIB(9).EQ.35,G103            ASSIGN BUYER.
1615          ACT,,ATRIB(9).EQ.41,G118;           KO DETERMINES NON-RESPONSIBILITY.
1616          ACT,,ATRIB(9).EQ.45,CONT;           KO REVIEW/SIGN.
1617          ACT,,ATRIB(9).EQ.46,A106;           ASSIGN BUYER.
1618          ACT,,ATRIB(9).EQ.51,A121;           APPROVE NEGOTIATION OBJECTIVES.
1619          ACT,,ATRIB(9).EQ.53,CONT;           KO SIGN.
1620          ACT,,ATRIB(9).EQ.54,G154;           ASSIGN BUYER.
1621          ACT,,ATRIB(9).EQ.55,A130;           ASSIGN BUYER.
1622          ACT,,ATRIB(9).EQ.59,A140;           APPROVE NEGOTIATION OBJECTIVES.
1623          ACT,,ATRIB(9).EQ.62,G179;           KO DETERMINES NON-RESPONSIBILITY.
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1624          ACT,,ATRIB(9).EQ.64,C(NT;              NO SIGN.
1625          ACT,,ATRIB(9).EQ.65,A1B1;              ASSIGN BUYER.
1626          ACT,,ATRIB(9).EQ.72,G;40;              NO DETERMINES NON-RESPONSIBILITY.
1627          ACT,,ATRIB(9).EQ.74,C(NT;              NO SIGN.
1628    Q15   QUEUE(15);                             PRICING BRANCH.
1629          ACT(23)/15,USERF(2),,Q15;
1630    M15   GOON,1;
1631          ACT,,ATRIB(9).EQ.49,A11B;              DCAA AUDIT, PRICE ANALYSIS.
1632          ACT,,ATRIB(9).EQ.57,A13B;              DCAA/PRICE ANALYSIS.
1633    CONT  GOON,1;                                CONTRACT DISTRIBUTION.
1634          ACT,,ATRIB(3).EQ.2,C1;
1635          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.0.AND.ATRIB(7).EQ.1,C2;
1636          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.1.AND.ATRIB(7).EQ.1,C3;
1637          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.1.AND.ATRIB(7).EQ.2,C4;
1638          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.1.AND.ATRIB(7).EQ.3,C5;
1639          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.1.AND.ATRIB(7).EQ.4,C6;
1640          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.1.AND.ATRIB(7).EQ.5,C7;
1641          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.2.AND.ATRIB(7).EQ.1,C8;
1642          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.2.AND.ATRIB(7).EQ.2,C9;
1643          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.2.AND.ATRIB(7).EQ.3,C10;
1644          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.2.AND.ATRIB(7).EQ.4,C11;
1645          ACT,,ATRIB(3).EQ.1.AND.ATRIB(5).EQ.2.AND.ATRIB(7).EQ.5,C12;
1646          ACT,,ATRIB(3).EQ.3.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.1,C13;
1647          ACT,,ATRIB(3).EQ.3.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.2,C14;
1648          ACT,,ATRIB(3).EQ.3.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.1,C15;
1649          ACT,,ATRIB(3).EQ.3.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.2,C16;
1650          ACT,,ATRIB(3).EQ.4.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.2,C17;
1651          ACT,,ATRIB(3).EQ.4.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.4,C18;
1652          ACT,,ATRIB(3).EQ.4.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.2,C19;
1653          ACT,,ATRIB(3).EQ.4.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.4,C20;
1654          ACT,,ATRIB(3).EQ.5.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.1,C21;
1655          ACT,,ATRIB(3).EQ.5.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.2,C22;
1656          ACT,,ATRIB(3).EQ.5.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.1,C23;
1657          ACT,,ATRIB(3).EQ.6.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.2,C24;
1658          ACT,,ATRIB(3).EQ.6.AND.ATRIB(6).EQ.1.AND.ATRIB(7).EQ.4,C25;
1659          ACT,,ATRIB(3).EQ.6.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.4,C26;
1660          ACT,,ATRIB(3).EQ.6.AND.ATRIB(6).EQ.2.AND.ATRIB(7).EQ.5,C27;
1661    ;
1662    ;                                            INT(1) = FALT
1663    ;                                            = TNOW - ATRIB(1).
1664    ;
1665    C1    COLCT(1),INT(1),LESKSF;
1666          ACT,,,C28;
1667    C2    COLCT(2),INT(1),SBGSASP;
1668          ACT,,,C28;
1669    C3    COLCT(3),INT(1),SBFMSJPCSF;
1670          ACT,,,C28;
1671    C4    COLCT(4),INT(1),SBFMSJPCPBCA;
1672          ACT,,,C28;
1673    C5    COLCT(5),INT(1),SBFMSJPCUBCA;
1674          ACT,,,C28;
1675    C6    COLCT(6),INT(1),SBFMSJPCRFP;
1676          ACT,,,C28;
1677    C7    COLCT(7),INT(1),SBFMSJPCIFB;
1678          ACT,,,C28;
1679    C8    COLCT(8),INT(1),SBFMSJIFDSP;
1680          ACT,,,C28;
1681    C9    COLCT(9),INT(1),SBFMSJIFDFBCA;
```

```
1682          ACT,,,C28;
1683    C16   COLCT(10),INT(1),SOFPSNIPCUECA;
1684          ACT,,,C28;
1685    C11   COLCT(11),INT(1),SOFPSNIPCRFP;
1686          ACT,,,C28;
1687    C12   COLCT(12),INT(1),SOFPSNIPCIFE;
1688          ACT,,,C28;
1689    C13   COLCT(13),INT(1),UG5MLE25MFCSP;
1690          ACT,,,C28;
1691    C14   COLCT(14),INT(1),UG5MLE25MFCLBOA;
1692          ACT,,,C28;
1693    C15   COLCT(15),INT(1),UG5MLE25MMFCSP;
1694          ACT,,,C28;
1695    C16   COLCT(16),INT(1),UG5MLE25MMFCLBCA;
1696          ACT,,,C28;
1697    C17   COLCT(17),INT(1),UG25MFCUECA;
1698          ACT,,,C28;
1699    C18   COLCT(18),INT(1),UG25MFCRFP;
1700          ACT,,,C28;
1701    C15   COLCT(19),INT(1),UG25MMFCLBOA;
1702          ACT,,,C28;
1703    C20   COLCT(20),INT(1),UG25MMFCRFP;
1704          ACT,,,C28;
1705    C21   COLCT(21),INT(1),RG5MLE25MFCSP;
1706          ACT,,,C28;
1707    C22   COLCT(22),INT(1),RG5MLE25MFCFBOA;
1708          ACT,,,C28;
1709    C23   COLCT(23),INT(1),RG5MLE25MMFCSP;
1710          ACT,,,C29;
1711    C24   COLCT(24),INT(1),RG25MFCPECA;
1712          ACT,,,C28;
1713    C25   COLCT(25),INT(1),RG25MFCRFP;
1714          ACT,,,C28;
1715    C26   COLCT(26),INT(1),RG25MMFCRFP;
1716          ACT,,,C28;
1717    C27   COLCT(27),INT(1),RG25MMFCIFE;
1718          ACT,,,C28;
1719    C28   COLCT(28),INT(1),ALL;
1720          TERM,29374;                          TERMINATE SIMULATION AFTER
1721    ;                                          FINAL PHC EXITS SYSTEM.
1722          END;
1723    INIT,0,17520;                              PROGRAM STOPS AFTER 2 YEARS.
1724    ;                                          NOT ALL PHDS NEEC EXIT.
1725    FIN;
```

APPENDIX C

PWD INTERARRIVAL AND AUGMENTED PROCESSING TIME FUNCTIONS

The average monthly PWD interarrival times provided at Appendix D are used in the attached user-defined interarrival time function, USERF(1). One should note that two sets of the same arrival data are utilized in this function since replicated FY85 data is used for FY84.

A PWD can be delayed

1. while being processed by non-PPD personnel,

2. while waiting in a queue for an available PPD server, and

3. while encountering a "break" in servicing; i.e., the PWD has already been received by a PPD server, yet the server is not on duty (i.e., he is at lunch or away from the office overnight).

The first two types of delay are automatically recorded during the simulation by the SLAM compiler. The third, however, is not, and must be accounted for. The attached user-defined function, USERF(2), does precisely this. The following illustrate its development:

1. A PWD is being serviced by PPD personnel if, and only if, it is physically situated on a PPD server's desk. PWDs in queues are <u>awaiting</u> service; they are not considered to be on a server's desk.

2. Let S = the notional PWD "hands-on" processing time. It is this value that is listed adjacent each queue station at Appendix A.

3. Let B = the time, on a 24 hour clock, that a PWD is placed on said server's desk. Then B = 24 X [TNOW/24 - INT(TNOW/24)], where TNOW = the current time, and INT = the greatest integer function, i.e., INT(N) = the greatest non-negative integer not exceeding the number N. For example, if a PWD arrives to a server's desk top at 0330 hours, then TNOW = 3.30, TNOW/24 = .1375, INT(TNOW/24) = 0, and B = 24 X [.1375 - 0] = 3.3, as expected.

4. Let A = the PWD server augmented processing time which accounts for the server being away from his desk during lunch and overnight. Note this augmentation only applies if the PWD has already been placed on the server's desk. Since a server is assumed, in the model, to take lunch from 1200 to 1230 hours, and is off duty from 1630 to 0800 hours (15.5 hours), A will be a linear combination of .5 and 15.5.

5. Let TAST = the total augmented PWD service time.

6. Then the following holds:

$$
TAST = \begin{cases} S+8-B+A, & \text{if } 0 < B <= 8 \\ S+A, & \text{if } 8 < B < 12 \\ S+12.5-B+A, & \text{if } 12 <= B < 12.5 \\ S+A, & \text{if } 12.5 <= B <= 16.5 \\ S+32-B+A, & \text{if } 16.5 < B <= 24. \end{cases}
$$

Thus, A must be determined to compute TAST. Note from the preceding that the value of A is a function of the time interval in which B is situated.

CASE 1 $0 < B <= 8$.

The PWD has been placed on the server's desk between 000 and 0800 hours, say at 0500. When he reports for duty at 0800, 3 (8-5) hours of PALT have elapsed for the PWD in question. Assuming the "hands-on" service time is, say, 2 hours, then the server can service the PWD before lunch time, and the PWD server augmented processing time equals zero. Hence, in this example, S = 2 hours, B = 5 hours, and A = 0 hours. Therefore, TAST = S+8-B+A = 2+8-5+0 = 5 hours. The following can be shown to hold for this case:

if 0[4] < S <= 1[4], then A = 0[.5]+0[15.5] (no lunch or overnight delay)

1[4] < S <= 2[4], 1[.5]+0[15.5] (1 lunch but no overnight delay)

2[4] < S <= 3[4], 1[.5]+1[15.5] (1 lunch and 1 overnight delay)

3[4] < S <= 4[4], 2[.5]+1[15.5] (2 lunch and 1 overnight delay).

. .

. .

etc.

Let M = 1, 2, 3, ..., 18. Consequently,

if 4[M-1] < S <= 4[M], then A = .5[INT(M/2)]+15.5[INT((M-1)/2)].

S is measured in hours; hence, so is M. Note from Appendix A that no S ever exceeds 72 (4[18]) hours; therefore, M does not exceed 18.

CASE 2 8 < B < 12.

If a PWD arrives between 0800 and 1200 hours, then 12-B hours remain until lunch at 1200 hours. For example, if a PWD arrives at 0900, then 3 (12-9) hours elapse before the server goes to lunch. It can be shown, for this case, that:

if 0 < S <= 12-B, then A = 0, and

if 12-B+4[M-1] < S <= 12-B+4[M], then A = .5[INT((M+1)/2)]+15.5[INT(M/2)] with M as before.

CASE 3 12 <= B < 12.5.

The PWD arrives during the server's lunch break. It can be shown that:

if 4[M-1] < S <= 4[M], then A = .5[INT((M-1)/2)]+15.5[INT(M/2)],

M as before.

CASE 4 $12.5 <= B <= 16.5$.

The PWD arrives on the server's desk after lunch, but before close of business. It can be shown that:

if $0 <= S <= 16.5-B$, then $A = 0$, and

if $16.5-B+4[M-1] < S <= 16.5-B+4[M]$, then

$$A = .5[INT(M/2)]+15.5[INT((M+1)/2)],$$

M as before.

CASE 5 $16.5 < B <= 24$.

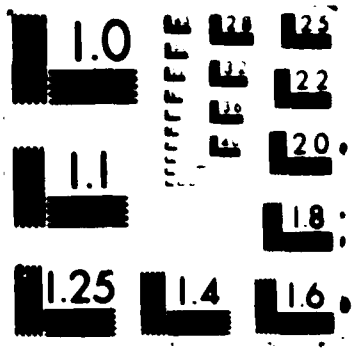
The PWD arrives on the server's desk after close of business, but no later than midnight. Note it is on the server's desk when he reports for duty; therefore, A is as in Case 1.

```
      FUNCTION USERF(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      GO TO (1,2),I
    1 IF (TNOW.LE.4368.) USERF=USFA(1)
      IF (TNOW.GT.4368..AND.TNOW.LE.8760.) USERF=USFB(1)
      IF (TNOW.GT.8760..AND.TNOW.LE.13128.) USERF=USFC(1)
      IF (TNOW.GT.13128..AND.TNOW.LE.17520.) USERF=USFC(1)
      IF (TNOW.GT.17520.) USERF=9999999.
      RETURN
    2 A=ATRIB(10)
      B=24*(TNOW/24.-INT(TNOW/24.))
      IF (0..LT.B.AND.B.LE.8.) USERF=A*8.-B*US(1)
      IF (8..LT.B.AND.B.LT.12.) USERF=A*US(2)
      IF (12..LE.B.AND.B.LT.12.5) USERF=A*12.5-B*US(3)
      IF (12.5.LE.B.AND.B.LE.16.5) USERF=A*US(4)
      IF (16.5.LT.B.AND.B.LE.24.) USERF=A*32.-B*US(1)
      RETURN
      END
      FUNCTION USFA(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      IF (TNOW.LE.744.) USFA=.693383
      IF (TNOW.GT.744..AND.TNOW.LE.1464.) USFA=.5642633
      IF (TNOW.GT.1464..AND.TNOW.LE.2208.) USFA=.3531087
      IF (TNOW.GT.2208..AND.TNOW.LE.2952.) USFA=.6819432
      IF (TNOW.GT.2952..AND.TNOW.LE.3624.) USFA=.7148936
      IF (TNOW.GT.3624..AND.TNOW.LE.4368.) USFA=.6299746
      RETURN
      END
      FUNCTION USFB(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      IF (TNOW.GT.4368..AND.TNOW.LE.5088.) USFB=.6563355
      IF (TNOW.GT.5088..AND.TNOW.LE.5832.) USFB=.7447447
      IF (TNOW.GT.5832..AND.TNOW.LE.6552.) USFB=.8551069
      IF (TNOW.GT.6552..AND.TNOW.LE.7296.) USFB=.8493151
      IF (TNOW.GT.7296..AND.TNOW.LE.8040.) USFB=.3149873
      IF (TNOW.GT.8040..AND.TNOW.LE.8760.) USFB=.8540925
      RETURN
      END
      FUNCTION USFC(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      IF (TNOW.GT.8760..AND.TNOW.LE.9504.) USFC=.693383
      IF (TNOW.GT.9504..AND.TNOW.LE.10224.) USFC=.5642633
      IF (TNOW.GT.10224..AND.TNOW.LE.10968.) USFC=.3531087
      IF (TNOW.GT.10968..AND.TNOW.LE.11712.) USFC=.6819432
      IF (TNOW.GT.11712..AND.TNOW.LE.12384.) USFC=.7148936
      IF (TNOW.GT.12384..AND.TNOW.LE.13128.) USFC=.6299746
      RETURN
```

```
      END
      FUNCTION USFD(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      IF (TNOW.GT.13128..AND.TNOW.LE.13848.) USFD=.6563355
      IF (TNOW.GT.13848..AND.TNOW.LE.14592.) USFD=.7447447
      IF (TNOW.GT.14592..AND.TNOW.LE.15312.) USFD=.8551069
      IF (TNOW.GT.15312..AND.TNOW.LE.16056.) USFD=.8493151
      IF (TNOW.GT.16056..AND.TNOW.LE.16800.) USFD=.3145873
      IF (TNOW.GT.16800..AND.TNOW.LE.17520.) USFD=.8540925
      RETURN
      END
      FUNCTION US(I)
      COMMON/SCOM1/ ATRIB(100), DD(100), DDL(100), DTNOW, II, MFA,
     1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
     2SSL(100), TNEXT, TNOW, XX(100)
      A=ATRIB(10)
      B=24*(TNOW/24.-INT(TNOW/24.))
      GO TO (1,2,3,4),I
    1 DO 10 M=1,18
      IF ((4*(M-1)).LT.A.AND.A.LE.(4*M)) GO TO 15
   10 CONTINUE
   15 US=.5*(INT(M/2))+15.5*(INT((M-1)/2))
      RETURN
    2 IF (A.GT.(12.-B)) GO TO 17
      US=0.
      RETURN
   17 DO 20 M=1,18
      IF ((12.-B+4*(M-1)).LT.A.AND.A.LE.(12.-B+4*M)) GO TO 21
   20 CONTINUE
   21 US=.5*(INT((M+1)/2))+15.5*(INT(M/2))
      RETURN
    3 DO 22 M=1,18
      IF ((4*(M-1)).LT.A.AND.A.LE.(4*M)) GO TO 23
   22 CONTINUE
   23 US=.5*(INT((M-1)/2))+15.5*(INT(M/2))
      RETURN
    4 IF (A.GT.(16.5-B)) GO TO 24
      US=0.
      RETURN
   24 DO 25 M=1,18
      IF ((16.5-B+4*(M-1)).LT.A.AND.A.LE.(16.5-B+4*M)) GO TO 26
   25 CONTINUE
   26 US=.5*(INT(M/2))+15.5*(INT((M+1)/2))
      RETURN
      END
```

AD-A181 736 ALIGNMENT OF MANPOWER REQUIREMENTS WITH PROCUREMENT WORKLOAD(U) ARMY PROCUREMENT RESEARCH OFFICE FORT LEE VA W J WICKER MAR 87 APRO-86-01 2/2

UNCLASSIFIED F/G 15/5 NL


1.0
1.1
1.25
1.4
1.6
2.0
2.2
2.5

APPENDIX D

ARRIVAL TIMES OF FY85 FUNDED SECONDARY ITEM MICOM PWDS

Let A = average monthly PWD interarrival time in hours.

MM/DD	BASICS
10/02	25
09	22
11	22
15	180
16	31
18	148
22	42
23	2
29	461
31	140
--	---
--	---
--	---
[Total =	1073]
[A =	.693383]

MM/DD	BASICS
01/03	69
07	152
08	24
10	92
14	52
15	14
17	71
21	73
22	51
24	125
28	153
29	91
31	124
[Total =	1091]
[A =	.6819432]

MM/DD	BASICS
11/02	52
05	173
06	31
08	119
13	71
15	104
19	64
20	59
26	154
27	68
30	381
[Total =	1276]
[A =	.5642633]

MM/DD	BASICS
02/05	38
11	120
13	169
14	32
20	137
21	44
26	356
28	44
--	---
--	---
--	---
[Total =	940]
[A =	.7148936]

MM/DD	BASICS
12/03	461
04	4
06	109
10	286
11	97
13	251
17	254
18	63
20	231
27	237
28	13
31	101
[Total =	2107]
[A =	.3531087]

MM/DD	BASICS
03/05	71
11	279
12	99
14	104
17	28
18	18
19	61
21	42
24	125
26	0
30	277
31	
[Total =	1181]
[A =	.6299746]

MM/DD	BASICS
04/02	82
05	1
10	184
11	114
15	120
16	175
18	120
22	61
23	67
29	138
30	35
[Total =	1097]
[A =	.6563355]
05/02	77
06	49
07	13
09	298
13	106
14	45
16	71
20	62
21	52
23	79
28	47
29	47
30	31
31	22
[Total =	999]
[A =	.7447447]
06/03	20
04	29
05	11
06	23
09	15
10	20
11	15
12	13
13	46
16	10
17	24
18	32
19	31
20	43
23	22
24	101
25	6
26	26
30	355
[Total =	842]
A =	.8551069]

MM/DD	BASICS
07/02	218
07	18
09	94
10	50
11	25
14	28
15	43
16	63
17	36
18	65
21	38
22	18
23	25
24	27
25	29
28	15
29	29
30	12
31	43
[Total =	876]
[A =	.8493151]
08/02	15
05	11
06	146
08	138
11	394
12	95
13	4
14	57
15	60
18	840
19	10
20	79
21	97
22	16
26	72
27	22
28	14
29	288
31	4
[Total =	2362]
[A =	.3149873]

MM/DD	BASICS
09/03	7
04	19
05	54
08	45
09	32
10	36
11	194
12	26
15	37
16	20
17	19
18	71
19	30
22	16
23	114
24	12
25	18
26	14
27	9
29	10
30	60
[Total =	843]
[A =	.8540925]

APPENDIX F

OUTPUT UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION

S L A M S U M M A R Y R E P O R T

SIMULATION PROJECT PICOPSPARES BY WHITING JOHN WICKER

DATE 9/10/1986 RUN NUMBER 1 OF 1

CURRENT TIME .1752E+05
STATISTICAL ARRAYS CLEARED AT TIME 0.

STATISTICS FOR VARIABLES BASED ON OBSERVATION

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LESASP	.7353E+03	.3406E+03	.4741E+00	.3885E+03	.3483E+04	9787
SOSASP	.5872E+04	.2262E+04	.3853E+00	.6133E+03	.1009E+05	335
SOFRSIPOSP	.6078E+04	.2273E+04	.3739E+00	.9743E+03	.1008E+05	2000
SOFRSIPOPOOA	.8180E+04	.3646E+04	.4452E+00	.3137E+04	.1385E+05	40
SOFRSIPOUOOA	.6774E+04	.3664E+04	.5412E+00	.1426E+04	.1276E+05	75
SOFRSIPOOFP	.8628E+04	.3393E+04	.3933E+00	.2026E+04	.1446E+05	263
SOFRSIPOIFO	.6710E+04	.2103E+04	.3253E+00	.2761E+04	.1022E+05	168
SOFRSAIPOSP	.6509E+04	.2121E+04	.3412E+00	.1415E+04	.1133E+05	1015
SOFRSAIPOPOOA	.9159E+04	.3365E+04	.3675E+00	.3508E+04	.1386E+05	29
SOFRSAIPOUOOA	.6342E+04	.3507E+04	.5530E+00	.1991E+04	.1320E+05	55
SOFRSAIPOOFP	.9056E+04	.3220E+04	.3675E+00	.3341E+04	.1402E+05	150
SOFRSAIPOIFO	.7199E+04	.2169E+04	.3013E+00	.3067E+04	.1102E+05	85
UGSALE2SRFCSP	.5402E+04	.2198E+04	.4068E+00	.8558E+03	.9192E+04	61
UGSALE2SRFCUOOA	.5435E+04	.4101E+04	.7546E+00	.2795E+04	.1155E+05	4
UGSALE2SRWFCSP	.5613E+04	.2391E+04	.4260E+00	.1001E+04	.9913E+04	265
UGSALE2SRWFCUOOA	.1015E+05	0.	0.	.1015E+05	.1015E+05	1
UG2SRFCUOOA		NO VALUES RECORDED				
UG2SRFCOFP	.7924E+04	.3899E+04	.3912E+00	.3408E+04	.1191E+05	12
UG2SRWFCUOOA	.1241E+05	0.	0.	.1241E+05	.1241E+05	1
UG2SRWFCWFP	.7986E+04	.3260E+04	.4081E+00	.2495E+04	.1405E+05	89
RGSALE2SRFCSP	.5953E+04	.2645E+04	.4443E+00	.1810E+04	.1380E+05	72
RGSALE2SRFCPOOA	.7092E+04	.2620E+04	.3626E+00	.3026E+04	.1076E+05	10
RGSALE2SRWFCSP	.5711E+04	.2595E+04	.4544E+00	.4032E+03	.1439E+05	1050
RG2SRFCPOOA	.7380E+04	.3846E+04	.5211E+00	.5005E+04	.1102E+05	3
RG2SRFCOFP	.9233E+04	.3210E+04	.3477E+00	.6012E+04	.1656E+05	9
RG2SRWFCAFP	.6055E+04	.4263E+04	.7206E+00	.2931E+04	.1225E+05	4
RG2SRWFCIFO	.7001E+04	.2524E+04	.3605E+00	.2261E+04	.1406E+05	315
ALL	.3218E+04	.3284E+04	.1020E+01	.3885E+03	.1402E+05	17498

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	4948.7441	2796.3243	9830	9826	4424.7000
2	QUEUE	49.9813	21.8938	100	91	60.9206
3	QUEUE	2.1405	2.3123	15	3	3.6456
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	224.9597	100.4702	581	581	2978.0720
6	QUEUE	0.1262	0.9237	21	0	0.0584
7	QUEUE	0.4628	1.1861	13	0	0.6633
8	QUEUE	0.0015	0.0726	7	0	0.0007
9	QUEUE	0.5253	1.3970	10	0	0.7517
10	QUEUE	0.0089	0.1060	11	0	0.0040
11	QUEUE	0.5320	1.2036	13	0	0.7319
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	1394.1408	264.3037	1660	1376	20.7103

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE		SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVER	MAXIMUM BUSY TIME/SERVER
1	01	QUEUE	2	1.9997	0.0214	2	0.0000	2.0000	2.0000
2	02	QUEUE	17	16.4651	2.5937	17	0.0000	17.0000	17.0000
3	03	QUEUE	3	2.6490	0.7736	3	0.0000	3.0000	3.0000
5	05	QUEUE	1	0.8485	0.3586	1	0.0000	1438.2968	14502.7777
6	06	QUEUE	20	16.0390	6.2168	19	0.0000	20.0000	20.0000
7	07	QUEUE	4	2.2367	1.4703	2	0.0000	4.0000	4.0000
8	08	QUEUE	36	15.7117	6.0876	21	0.0000	36.0000	36.0000
9	09	QUEUE	4	2.2360	1.4885	1	0.0000	4.0000	4.0000
10	010	QUEUE	34	15.5368	6.1911	17	0.0000	34.0000	34.0000
11	011	QUEUE	4	2.2048	1.4745	4	0.0000	4.0000	4.0000
12	012	QUEUE	1	0.0047	0.0683	0	0.0000	6337.5321	22.6360
13	013	QUEUE	1	0.0073	0.0850	0	0.0000	4781.8923	22.6360
14	014	QUEUE	1	0.0073	0.0853	0	0.0000	7435.4752	22.6360
15	015	QUEUE	23	1.5438	1.3270	0	0.0000	23.0000	6.0000

APPENDIX F

OUTPUT UTILIZING FIRST MICOM PPD MANPOWER REALLOCATION

SLAM SUMMARY REPORT

SIMULATION PROJECT NICOMSPARES I — BY *WHITING JOHN MICHAEL

DATE 9/16/1986 — RUN NUMBER 1 OF 1

CURRENT TIME .1752E+05
STATISTICAL ARRAYS CLEARED AT TIME 0.

STATISTICS FOR VARIABLES BASED ON OBSERVATION

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LESRSP	.7445E+03	.3516E+03	.4723E+00	.3985E+03	.3156E+04	10123
SBGSASP	.2812E+04	.9328E+03	.3318E+00	.5090E+03	.5973E+04	586
SBFMSIPDSP	.3549E+04	.1144E+04	.3223E+00	.8489E+03	.9284E+04	4548
SBFMSIPDPBCA	.5010E+04	.1138E+04	.2272E+00	.2963E+04	.8386E+04	109
SBFMSIPDUBCA	.3247E+04	.1019E+04	.3137E+00	.1734E+04	.8525E+04	233
SBFMSIPDRFP	.4716E+04	.1056E+04	.2239E+00	.2790E+04	.8912E+04	641
SBFMSIPDIFB	.4307E+04	.1111E+04	.2580E+00	.2447E+04	.9615E+04	265
SBFMSNIPDSP	.4058E+04	.1166E+04	.2874E+00	.1119E+04	.1212E+05	2863
SBFMSNIPDPBQA	.5110E+04	.9745E+03	.1907E+00	.3749E+04	.8256E+04	86
SBFMSNIPDUBQA	.3908E+04	.1072E+04	.2743E+00	.1903E+04	.7293E+04	123
SBFMSNIPDRFP	.5112E+04	.9850E+03	.1927E+00	.2765E+04	.9365E+04	428
SBFMSNIPDIFB	.4843E+04	.1137E+04	.2349E+00	.2816E+04	.9935E+04	173
UGSRLE25RFCSP	.3040E+04	.1009E+04	.3320E+00	.1009E+04	.5476E+04	80
UGSRLE25RFCUBQA	.2833E+04	.9778E+03	.3452E+00	.1796E+04	.3823E+04	5
UGSRLE25RNFCSP	.4213E+04	.1714E+04	.4067E+00	.6743E+03	.8226E+04	372
UGSRLE25RNFCUBCA		NO VALUES RECORDED				
UG25RFCUBQA	.4624E+04	.2707E+04	.5855E+00	.2710E+04	.6538E+04	2
UG25RFCRFP	.5688E+04	.1571E+04	.2762E+00	.2723E+04	.8232E+04	40
UG25RNFCUBCA	.6181E+04	.3014E+04	.4876E+00	.2720E+04	.9725E+04	6
UG25RNFCRFF	.6575E+04	.2247E+04	.3418E+00	.2431E+04	.1093E+05	145
RGSRLE25RFCSP	.4192E+04	.1904E+04	.4543E+00	.6781E+03	.7779E+04	97
RGSRLE25RFCPBQA	.6454E+04	.1522E+04	.2359E+00	.3703E+04	.9161E+04	23
RGSRLE25RNFCSP	.3847E+04	.1761E+04	.4578E+00	.4258E+03	.1029E+05	1499
RG25RFCPBQA	.6230E+04	.1916E+04	.3076E+00	.3998E+04	.1047E+05	16
RG25RFCRFP	.6559E+04	.1964E+04	.2994E+00	.2673E+04	.1009E+05	31
RG25RNFCRFP	.5296E+04	.2222E+04	.4196E+00	.2674E+04	.9003E+04	10
RG25RNFCIFB	.5967E+04	.2045E+04	.3427E+00	.2064E+04	.1119E+05	451
ALL	.2560E+04	.1972E+04	.7704E+00	.3985E+03	.1212E+05	22953

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	379.4318	272.0614	960	593	341.6497
2	QUEUE	1600.2724	1140.1067	3888	3979	1203.7544
3	QUEUE	0.2814	0.9504	12	0	0.3134
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	1.4242	2.1192	11	2	13.1254
6	QUEUE	3.3890	8.6305	65	0	1.2290
7	QUEUE	1.2568	2.3176	23	0	1.4071
8	QUEUE	0.1077	1.0227	23	0	0.0393
9	QUEUE	1.1158	2.1617	22	0	1.2557
10	QUEUE	0.2763	1.4638	25	0	0.0974
11	QUEUE	1.2006	2.2301	21	0	1.3082
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0005	0.0230	1	0	1.1605
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0368	0.2111	2	0	3.3069
16	CALENDAR	2005.0944	376.9666	2475	2078	22.3219

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE		SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVERS	MAXIMUM BUSY TIME/SERVERS
1	Q1	QUEUE	4	3.9144	0.4687	4	0.0000	4.0000	4.0000
2	Q2	QUEUE	27	26.2074	4.0924	27	0.0000	27.0000	27.0000
3	Q3	QUEUE	7	4.0486	2.1156	6	0.0000	7.0000	7.0000
5	Q5	QUEUE	3	2.1575	1.1586	3	0.0000	3.0000	3.0000
6	Q6	QUEUE	28	21.2539	6.8914	20	0.0000	28.0000	28.0000
7	Q7	QUEUE	4	2.7808	1.4251	3	0.0000	4.0000	4.0000
8	Q8	QUEUE	36	20.7459	7.4360	19	0.0000	36.0000	36.0000
9	Q9	QUEUE	4	2.6914	1.4359	3	0.0000	4.0000	4.0000
10	Q10	QUEUE	34	21.5679	7.5387	11	0.0000	34.0000	34.0000
11	Q11	QUEUE	4	2.7366	1.4325	4	0.0000	4.0000	4.0000
12	Q12	QUEUE	1	0.0083	0.0794	0	0.0000	4510.2474	16.8886
13	Q13	QUEUE	1	0.0083	0.0905	0	0.0000	9244.2719	45.2720
14	Q14	QUEUE	1	0.0146	0.1199	0	0.0000	3453.5937	22.6360
15	Q15	QUEUE	5	1.7486	1.5437	1	0.0000	5.0000	5.0000

APPENDIX G

TWO SIMULATION RUNS OF SPECIAL BUY MICOM PWDS

UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION

S L A M S U M M A R Y R E P O R T

SIMULATION PROJECT RECONSPOWYS BY WHITING JOHN MICHAEL

DATE 10/22/1986 RUN NUMBER 1 OF 2

CURRENT TIME .7502E+04
STATISTICAL ARRAYS CLEARED AT TIME 0.

STATISTICS FOR VARIABLES BASED ON OBSERVATION

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LES&SP		NO VALUES RECORDED				
SDS&SASP	.2030E+04	.7204E+03	.3547E+00	.6099E+03	.4704E+04	61
SOFASIPDSP	.2726E+04	.6008E+03	.2524E+00	.1228E+04	.4977E+04	428
SOFASIPDPOOA	.4230E+04	.6458E+03	.1522E+00	.2845E+04	.5218E+04	16
SOFASIPDUOOA	.2792E+04	.7025E+03	.2516E+00	.1731E+04	.4162E+04	24
SOFASIPOOFP	.4539E+04	.9536E+03	.2101E+00	.2867E+04	.6881E+04	84
SOFASIPOOFO	.3528E+04	.6097E+03	.1732E+00	.2579E+04	.4854E+04	26
SOFASHEPDSP	.3292E+04	.7701E+03	.2340E+00	.1416E+04	.5922E+04	202
SOFASHEPDPOOA	.5365E+04	.1035E+04	.1928E+00	.3549E+04	.6821E+04	7
SOFASHEPDUOOA	.3336E+04	.8183E+03	.2453E+00	.1904E+04	.4343E+04	14
SOFASHEPOOFP	.4844E+04	.8552E+03	.1766E+00	.3026E+04	.6179E+04	48
SOFASHEPOIFO	.3060E+04	.3502E+03	.9073E-01	.3239E+04	.4261E+04	10
UGSALE2SKFCSP		NO VALUES RECORDED				
UGSALE2SKFCUOOA		NO VALUES RECORDED				
UGSALE2SKNFCSP		NO VALUES RECORDED				
UGSALE2SKNFCUOOA		NO VALUES RECORDED				
UG2SKFCUOOA		NO VALUES RECORDED				
UG2SKFCOFP		NO VALUES RECORDED				
UG2SKNFCUOOA		NO VALUES RECORDED				
UG2SKNFCOFP		NO VALUES RECORDED				
RGSALE2SKFCSP		NO VALUES RECORDED				
RGSALE2SKFCPOOA		NO VALUES RECORDED				
RGSALE2SKNFCSP		NO VALUES RECORDED				
RG2SKFCPOOA		NO VALUES RECORDED				
RG2SKFCOFP		NO VALUES RECORDED				
RG2SKNFCOFP		NO VALUES RECORDED				
RG2SKNFCIFO		NO VALUES RECORDED				
ALL	.3102E+04	.1037E+04	.3260E+00	.6099E+03	.6881E+04	1000

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	90.2560	106.7027	679	0	737.1097
2	QUEUE	1.4210	3.4601	21	0	9.4252
3	QUEUE	0.3484	1.0290	9	0	2.3111
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	0.7847	11.2322	33	0	341.4544
6	QUEUE	0.0000	0.0000	0	0	0.0000
7	QUEUE	0.0029	0.0686	2	0	0.0353
8	QUEUE	0.0000	0.0000	0	0	0.0000
9	QUEUE	0.0003	0.0168	2	0	0.0035
10	QUEUE	0.0000	0.0000	0	0	0.0000
11	QUEUE	0.0005	0.0364	4	0	0.0056
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	271.0593	273.0018	787	1	28.3905

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE		SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVER	MAXIMUM BUSY TIME/SERVER
1	01	QUEUE	2	0.5749	0.9060	0	0.0000	2.0000	2.0000
2	02	QUEUE	17	4.0205	7.2339	0	0.0000	17.0000	17.0000
3	03	QUEUE	3	0.7392	1.2216	0	0.0000	3.0000	3.0000
5	05	QUEUE	1	0.5049	0.5000	0	0.0000	1760.1621	3441.1966
6	06	QUEUE	28	2.3138	2.0865	0	0.0000	28.0000	17.0000
7	07	QUEUE	4	0.2540	0.6262	0	0.0000	4.0000	4.0000
8	08	QUEUE	36	2.5963	3.2023	0	0.0000	36.0000	19.0000
9	09	QUEUE	4	0.2888	0.6344	0	0.0000	4.0000	4.0000
10	010	QUEUE	34	2.7980	3.2543	0	0.0000	34.0000	16.0000
11	011	QUEUE	4	0.3040	0.6607	0	0.0000	4.0000	4.0000
12	012	QUEUE	1	0.0013	0.0357	0	0.0000	4101.5514	9.5246
13	013	QUEUE	1	0.0000	0.0000	0	0.0000	7501.7774	0.0000
14	014	QUEUE	1	0.0000	0.0000	0	0.0000	7501.7774	0.0000
15	015	QUEUE	23	0.4444	0.8287	0	0.0000	23.0000	4.0000

S L A M S U M M A R Y R E P O R T

SIMULATION PROJECT MICROSPOKES BY WHITING JOHN MICKER

DATE 10/22/1986 RUN NUMBER 2 OF 2

CURRENT TIME .9441E+04
STATISTICAL ARRAYS CLEARED AT TIME 0.

STATISTICS FOR VARIABLES BASED ON OBSERVATION

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LES&SP		NO VALUES RECORDED				
SOS&SP	.2210E+04	.6408E+03	.3077E+00	.0000E+03	.4400E+04	43
SOF#SSP0SP	.2700E+04	.6911E+03	.2337E+00	.1091E+04	.4564E+04	417
SOF#SSP0P00A	.4346E+04	.6422E+03	.1570E+00	.3224E+04	.5950E+04	20
SOF#SSP0U00A	.2063E+04	.7814E+03	.2730E+00	.1780E+04	.4442E+04	17
SOF#SSP0RFP	.4206E+04	.8335E+03	.1945E+00	.2844E+04	.6721E+04	70
SOF#SSP0IF0	.3700E+04	.7688E+03	.2076E+00	.2608E+04	.5048E+04	34
SOF#S#EP0SP	.3253E+04	.8091E+03	.2487E+00	.1305E+04	.5306E+04	301
SOF#S#EP0P00A	.5253E+04	.8908E+03	.1696E+00	.3978E+04	.6666E+04	8
SOF#S#EP0U00A	.2800E+04	.6794E+03	.2357E+00	.1973E+04	.4421E+04	15
SOF#S#EP0RFP	.5016E+04	.1094E+04	.2190E+00	.3103E+04	.6702E+04	52
SOF#S#EP0IF0	.3870E+04	.7498E+03	.1933E+00	.2618E+04	.5945E+04	15
UGS#LE2S#FCSP		NO VALUES RECORDED				
UGS#LE2S#FCU00A		NO VALUES RECORDED				
UGS#LE2S#NFCSP		NO VALUES RECORDED				
UGS#LE2S#NFCU00A		NO VALUES RECORDED				
UG2S#FCU00A		NO VALUES RECORDED				
UG2S#FCRFP		NO VALUES RECORDED				
UG2S#NFCU00A		NO VALUES RECORDED				
UG2S#NFCRFP		NO VALUES RECORDED				
RGS#LE2S#FCSP		NO VALUES RECORDED				
RGS#LE2S#FCP00A		NO VALUES RECORDED				
RGS#LE2S#NFCSP		NO VALUES RECORDED				
RG2S#FCP00A		NO VALUES RECORDED				
RG2S#FCRFP		NO VALUES RECORDED				
RG2S#NFCRFP		NO VALUES RECORDED				
RG2S#NFCIF0		NO VALUES RECORDED				
ALL	.3236E+04	.1018E+04	.3124E+00	.0000E+03	.8702E+04	1000

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	78.0751	171.0954	679	0	737.1097
2	QUEUE	2.1419	5.2924	30	0	17.8956
3	QUEUE	0.2219	0.7773	7	0	1.8538
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	5.4319	9.5925	33	0	269.9088
6	QUEUE	0.0000	0.0000	0	0	0.0000
7	QUEUE	0.0020	0.0598	3	0	0.0276
8	QUEUE	0.0000	0.0000	0	0	0.0000
9	QUEUE	0.0011	0.0436	2	0	0.0154
10	QUEUE	0.0000	0.0000	0	0	0.0000
11	QUEUE	0.0014	0.0374	1	0	0.0207
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	220.2848	276.9983	829	0	28.6960

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE		SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVERS	MAXIMUM BUSY TIME/SERVERS
1	01	QUEUE	2	0.4600	0.8415	0	0.0000	2.0000	2.0000
2	02	QUEUE	17	3.9823	6.7777	0	0.0000	17.0000	17.0000
3	03	QUEUE	3	0.5929	1.1339	0	0.0000	3.0000	3.0000
5	05	QUEUE	1	0.5926	0.4963	0	0.0000	2130.1857	3188.7369
6	06	QUEUE	20	2.0705	3.0063	0	0.0000	20.0000	19.0000
7	07	QUEUE	4	0.2474	0.6156	0	0.0000	4.0000	4.0000
8	08	QUEUE	36	2.3020	3.3070	0	0.0000	36.0000	21.0000
9	09	QUEUE	4	0.2702	0.6420	0	0.0000	4.0000	4.0000
10	010	QUEUE	34	1.0098	2.6134	0	0.0000	34.0000	16.0000
11	011	QUEUE	4	0.2230	0.5898	0	0.0000	4.0000	4.0000
12	012	QUEUE	1	0.0014	0.0370	0	0.0000	6410.2253	12.9107
13	013	QUEUE	1	0.0000	0.0000	0	0.0000	9441.0330	0.0000
14	014	QUEUE	1	0.0000	0.0000	0	0.0000	9441.0330	0.0000
15	015	QUEUE	23	0.2663	0.5678	0	0.0000	23.0000	3.0000

APPENDIX H

COMPUTER HARDWARE AND SOFTWARE REQUIREMENTS

A. HARDWARE REQUIREMENTS.

SLAM is independent of the machine on which it is run; it neither opens nor closes any files. The random number generater supplied with SLAM is replaceable by a machine-specific generator, if desired. SLAM has been successfully installed on numerous computing systems, including those from AMDAHL, Burroughs, Honeywell, and UNIVAC, to mention but a few.

The simulations conducted in the course of this project were run at ALMC on its BURROUGHS B6800 computer, which includes 393,216 6-byte words (2,359,296 bytes) of main memory, 662 million bytes of disk storage, and three 1600 bit per inch tape drives.

This system is not dedicated; several programs can be executed concurrently. Consequently, processing time for each simulation run was on the order of seven days, due to the system having to share its resources. The amount of CPU time consumed during each simulation was approximately five hours.

B. SOFTWARE REQUIREMENTS.

A compatible FORTRAN complier is the only prerequisite software required.

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U.S. Army Materiel Command Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans and are experiencing significant increases in Procurement Administrative Lead Time (PALT). A PALT computer simulation model was developed for determing Procurement and Production Directorate (PPD) manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, U.S. Army Missile Command (MICOM). It was

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found current MICOM PPD manpower allocation may be suboptimal. An algorithm was developed for realigning manpower to reduce average Procurement Work Directive PALT and procurement backlog. Future manpower reallocations should be simulated with dedicated computer resources to arrive at an optimal manpower realignment. A preliminary evaluation of the applicability of the MICOM model to other MSCs is made, with a more complete evaluation to be based on future analyses.

END

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